

India's mobile Internet :: The revolution has begun

An overview of how mobile Internet is touching the lives of millions



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Dear Reader,

It's been almost two years since we published our last report “India goes Digital” where we had attempted to provide an overview of the digital consumer landscape in India and reasons why we were bullish about that opportunity. Since then, the industry has faced considerable headwinds that have included a significant slowdown of the overall Indian economy, sudden reversal in sentiment for e-commerce ventures (resulting in a severe paucity of capital available), adverse market dynamics in the online travel segment, etc.

Notwithstanding all the headwinds, we are extremely encouraged by the fact that almost every projection we made in the report appears to have played out as expected. The e-commerce industry grew more than 100% in 2012, number of Internet users crossed 150 million users, the industry delivered a few great exits for investors (Justdial, redBus) and almost every digital media business in the country witnessed rapid growth in consumer adoption.

As we sat down to brainstorm on what is likely to be the next big trend, it was difficult to think beyond mobile Internet and the promise it held for bridging the digital divide that exists, not just between India and the rest of the world but also between the haves and the have nots within India.

Given the far greater penetration of mobile phones globally (as compared to wireline broadband connections), mobile has been expected to emerge as the primary channel for accessing the Internet. If you apply this perspective to emerging countries like India, where wireline broadband connectivity is stuck in the middle ages, it appears fairly inevitable that mobile will become the primary access channel for a majority of Internet users.

Despite its promise, several questions remain unanswered about how potential of this medium will unfold in India. Will companies be able to monetize their offerings? Does the medium afford itself to scale and development of large enterprises? Will Internet based businesses transition to mobile leaving little room for “mobile first” companies to compete? Will local start-ups be able to compete with global technology giants?

This report is an attempt to collate as much secondary data we could gather from disparate sources and combine that with perspectives and insights lent by industry practitioners we spoke with. We've tried to follow a similar approach to our previous report by first taking a detailed look at enablers, bottlenecks and emerging solutions within the mobile Internet ecosystem. We've then tried to address the question that every skeptic of mobile Internet raises through an analysis of existing and potential monetization mechanisms in the segment. Finally, we have explored emerging business models and have showcased a few companies that have gained scale by focusing on mobile as a primary medium for generation and consumption of their service.

As always, we welcome feedback from each of you and apologize if anything we've written (or missed out) offends anyone's sensitivities. Please do write to us with your feedback on the report and suggestions of what we could have done better.

Aashish Bhinde
Executive Director, Digital Media & Technology

Acknowledgements

This report is the culmination of efforts of several people who contributed their views and others who worked tirelessly to compile secondary data and conduct interviews of industry practitioners.

Firstly, we are grateful to each of the entrepreneurs, investors and industry professionals who lent their insights which helped enrich the perspectives we have been able to articulate in this report. We would also like to thank Amit Garg and K. Valliappan of MXV Consulting who provided outstanding support to our team for compiling data and conducting the analyses. We would like to thank Comscore India for providing data that facilitated our analysis.

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*Comscore data is for 46 million Internet audience above 15 years of age accessing Internet from Home or Work

Prologue

- Mobile Internet goes Mainstream
- India goes Mobile

Mobile Internet goes Mainstream

The ubiquitous nature of mobile phones has created a massive opportunity for mobile Internet businesses. Consider the following:

- There are over 2.4 billion Internet users in the world, of which 1.5 billion access the Internet through their mobile devices either as a primary or a supplementary device
- In less than 7 years, the number of smartphone users has already crossed 1 billion as against 1.5 billion PC users; Worldwide PC shipments declined by 10.9% in Q2 2013, the sharpest decline since 2001
- Shipments of Android-powered Internet devices exceeds that of Windows-powered devices
- Average time spent on mobile (non-voice) globally has already grown to 82 minutes per day
- Facebook has crossed a billion monthly active users, of which over 819 million access it through a mobile device; 41% of Facebook's revenues came from mobile in Q2 2013
- iTunes is the largest music vendor in the world by some distance and Pandora is the largest radio station in the world
- Google generated around $1 billion out of its $13.9 billion revenues from mobile in Q1 2013
- 38% of Internet users in China and 70% of Internet users in Egypt use Internet only on their mobile devices

While the numbers themselves are significant, what is more astounding is the growth/acceleration which is being witnessed on all things mobile – devices, connections, traffic, advertising, subscriptions, travel and physical goods. Mobiles themselves are a twenty year old phenomenon and now they are creating the platform for another revolution.

- Smartphones are expected to grow at a CAGR of 20% to reach 2.2 billion by 2015
- Tablet sales are expected to grow at a CAGR of 33% from 118 million units in 2012 to 369 million units by 2016
- Android is expected to overtake Windows to be the most used platform on computing devices by 2016, with 2.3 billion devices
- Mobile advertising has nearly doubled (95% growth in first half of 2012) in the US over the last year and is expected to continue with the same momentum
- M-tailing (purchase of products through mobile devices) has grown rapidly over the last two years to reach 11% of total e-tailing in the US in 2012, and is projected to reach 24% of overall e-tailing by 2016

The Internet demonstrated the ability of businesses to scale rapidly. The mobile ecosystem is demonstrating that it can improve the reach of Internet by a few multiples. The growth of social media and the ability of mobile devices to add location to the product mix are providing opportunities for businesses to fundamentally alter the way users engage socially or the manner in which they purchase goods and services. This is leading to the re-imagination of several business models.

Exhibit 1 New business models on mobile

Category	Old model	New model
News and information	Delayed reporters and cameramen Local / regional / national	Twitter, Reddit: Real-time, citizen reporting, global reach
Note taking	Pencil and notepad	Evernote: Always synced, multi-device, searchable
Files and folders	Print copies, storage cabinets and colour tabs	Dropbox, Google Drive, SugarSync: Always synced, always accessible, multi-device searchable digital files
Magazines	Printed copies	Flipboard and Currents: More content, always upto date, personalized, access everywhere, share
Education	Classrooms / Lectures / Reading materials	Khan academy, Coursera: Interactive, online and accessible by anyone anywhere anytime
Digital goods	Dedicated shopping sites / Fulfillment infrastructure	eBay, Amazon: Showrooming, shopping on the go

SoLoMo at the heart of mobile businesses

As highlighted in our previous report, SoLoMo models are providing the next battleground for digital businesses. At the same time, they are providing opportunities for newer players to dream big and challenge the status quo. It is easier to think of SoLoMo models in categories like music, where delivering locally relevant music on mobile and encouraging social engagement is relatively easy. However, even in other segments like travel and ecommerce, SoLoMo models are challenging the manner in which service providers engage with target consumers. We see SoLoMo as a theme which runs through all things mobile, and we discuss its impact at several places in this report.

The money continues to flow

Despite the dull global investment climate, the mobile has seen high levels of investment activity over the last year. Facebook set the tone early with its headline grabbing acquisition of Instagram[1], a 13-person mobile start-up valued then at a billion dollars, barely a week after its VCs invested $50 million at a valuation of $500 million.

In a further sign of the times, Microsoft recently announced the acquisition of Nokia's devices and services business. 4 out of the 5 largest VC fundings were for non-US companies, indicating the global nature of mobile business models.

Exhibit 2 Select VC investments in mobile technology in 2012

Company	Amount ($ Mn)	Sub-sector
Sonos	135	Wireless home music
Evernote	70	Notes application
Skybox Imaging	70	Satellite imagery
Lifestreet	66	Mobile advertising
Anchorfree	52	Wi-Fi security
Securekey	50	Mobile payments security
Foursquare	50	LBS application
Instagram	50	Photo sharing
SoundCloud	50	Music application
Smart Drive systems	47	Fleet management
Ddmap.com	40	Mobile Map
Path	40	Social Network
Tango	40	Video calling app
Viddy	36	Social Video
Boku	35	Mobile Payments

[1] The deal finally closed at $747 Mn

India goes Mobile

The revolutionary success of India's mobile industry is well known. What is not as well articulated is how the mobile ecosystem is driving Internet penetration in India. The following facts present a glimpse of that phenomenon:

- India has more than 160 million Internet users, of which 86 million access Internet using their mobile devices
- In the last 3-4 years, the number of users who access the Internet through a 3G connection has grown to round 22 million, To put things in perspective, compare this with the 15 million fixed line broadband connections accrued over the last 17 years
- There are over 36 million smartphone users as against c. 60 million PC users
- 9% of overall Internet pageviews in India come from mobile devices
- Over 40% of searches on Google originate from mobile device
- 30% of Facebook users in India are mobile-only Internet users and 30% of new registrations are coming through mobile
- LinkedIn ranks India among its top 4 growth markets for mobile usage

While e-commerce and digital advertising are acknowledged to have attained a certain critical mass in India, mobile Internet is yet to break into public consciousness. Mobile Internet based businesses have not scaled to levels where belief in the ability to monetize through the channel is established. Several models are still in the trial stage, but there are enough leading indicators to prove we may be on the cusp of a very exciting phenomenon.

Some of these include:

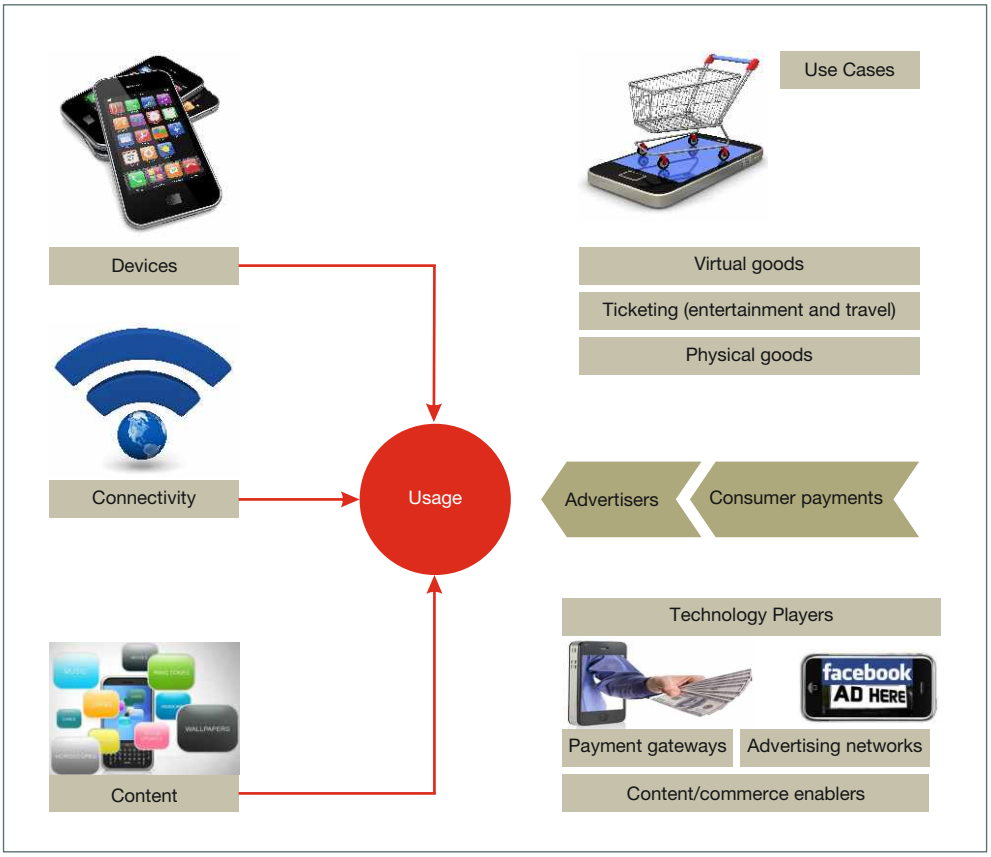
- Within a year of Bookmyshow launching its mobile app, bookings through the app increased to 25% of its overall bookings
- 20% of overall searches and 12% of bookings for Cleartrip come from its mobile app
- ngPay has built a mobile mall with considerable revenue traction
- Indians seem to be more open to paying for content on mobile - the paid app market estimated at INR 300 Cr, is far higher than what Indian consumers have ever been paid for digital content consumption

In addition to the above, mobile specific models which utilize location information, such as Olacabs, TaxiForSure, Adnear and DelightCircle are beginning to see significant traction.

Is it for real?

While it is essential to look at current monetization opportunities, it is also necessary to look at the potential which may be unlocked as the ecosystem falls in place. Looking back at the evolution of the digital media market, there have been a few critical elements of the ecosystem that need to achieve critical mass for the potential of the medium to be fully realized (Exhibit)

Exhibit 3 Elements of digital markets



One hypothesis is that mobile would evolve through the same ecosystem, and tracking progress in each of these areas could help determine where we are on this evolutionary curve. This leads us to a few critical questions:

1. Is mobile connectivity infrastructure falling in place?
2. Is the actual usage of mobile Internet going up? Is there enough content getting created to keep the user engaged?
3. Will content players be able to tackle piracy issues, and get users to pay?
4. Is the payment infrastructure falling in place? Are there any clear-cut solutions to get around the low credit card penetration issue?
5. Are advertising opportunities getting created? Is advertising acquiring the required sophistication to go mainstream – critical mass, better targeting and conversion capabilities?
6. Can m-tailing take off like e-tailing has in the recent years, and realize its potential?

Through this report, we have made an attempt to answer these and other critical questions about the mobile Internet.

Are Consumers Getting Onboard?

- Devices
- Connectivity
- Use Cases
- A Shift in Demographics, and New Opportunities

The penetration of mobile Internet is driven by three key factors - which form the backbone of the mobile Internet ecosystem:

- **Access devices** at the right cost, without compromising on the quality of user experience
- Availability of **affordable data connectivity** options, which enable consistent usage
- **"Strong Use Cases"**, which provide a compelling reason for users to adopt the technology

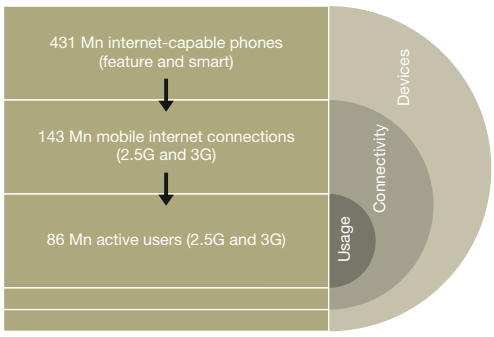
While improvements in each of these areas could lead to growth in mobile Internet usage, the real explosive growth in consumer adoption of mobile internet is only likely to happen when all of them fall in place together. In this section, we look at how these three parameters are evolving in India, and where mobile Internet adoption is headed, in this section.

Defining mobile Internet

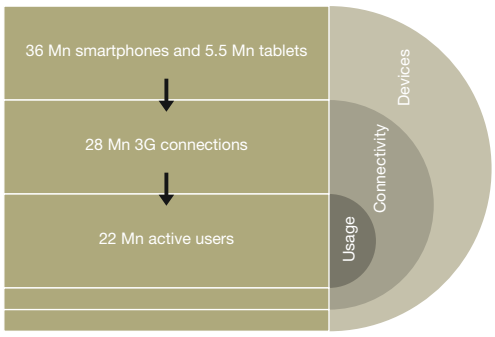
Mobile Internet refers to any form of Internet access on a mobile device – feature phones, smartphones and tablets. Our classification is not based on the mode of access. Therefore all forms of access including 2.5G (GPRS), 3G, 4G, Wi-Fi connections from fixed Internet and even dongles can be classified as mobile Internet access only if the access device is a mobile device. Most business model and revenue model specific numbers in this report are based on this definition. In some places, due to data availability issues and their relative significance levels, 2.5G and/or 3G metrics are taken as proxies for mobile Internet users.

Exhibit 4 Current status of mobile Internet usage in India (March 2013)

2.5G and 3G connections combined



3G connections



Devices

What really is a smartphone?

The key device categories which enable a person to access mobile Internet include feature phones, smartphones and tablets. There are other devices like gaming consoles which could access mobile Internet, but those add up to a very small number in India at this point in time.

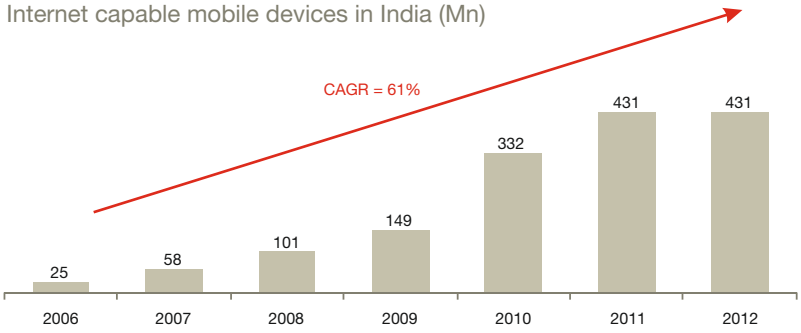
There has been no clear distinction between a feature phone and a smartphone for very long even though multiple definitions exist. The line seems to have got even more blurred with the introduction of richer feature phones such as the Nokia series 40 phones. For this analysis, we borrow the definition of a smartphone from IDC:

Smartphone is a mobile phone which runs on a high-level mobile operating system such as Android, iOS, Blackberry, Symbian or Windows Phone, which enables the device to run third party applications (in addition to basic voice telephony services).

Penetration of Internet capable mobile devices in India is way more than expected

The penetration of Internet capable mobile devices (feature phones and smartphones) in India is way higher than most people imagine. There were 431 million Internet capable mobile devices in use in India as of December 2012. This established base of devices creates a robust platform for widespread use of mobile Internet.

Exhibit 5 Internet capable mobile devices in India (Mn)



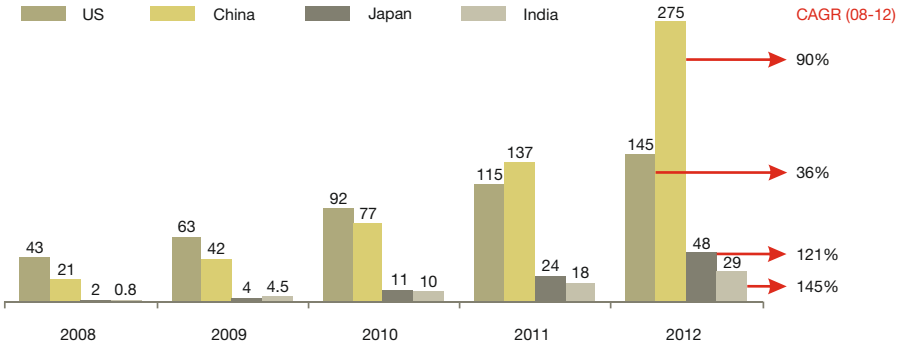
Source: TRAI quarterly performance indicator reports

Smartphone adoption has been transformational across countries

While it is possible to access mobile Internet using both feature phones and smartphones, the quality of user experience is without question better on a smartphone. This leads to better user engagement on smartphones as demonstrated by several research efforts – a smartphone user consumes 35 times more data than a feature phone user according to research by Cisco[2]. Increased engagement leads to better monetization opportunities through both advertising and commerce.

The number of global smartphone users grew by 44% over the last year to 1.4 billion at the end of Q4, 2012. This growth has been fuelled by the growth in China[3], and the Apple revolution being witnessed in the US. 42% of the 1.7 billion phones sold in 2012 were smart phones, and the share of smartphones shipped crossed the half way mark in the first quarter of 2013.

Exhibit 6 Number of smartphone users (Mn)



Source: Nielsen, IDC, NTT Docomo, Avendus estimates

The growing number of smartphones portends well for consumers accessing content off-deck (outside telecom operator's portal). Smartphones typically lead people to access content through mobile websites on a browser and through downloads from app stores – Apple App store, Google Play, Nokia OVI store and the like.

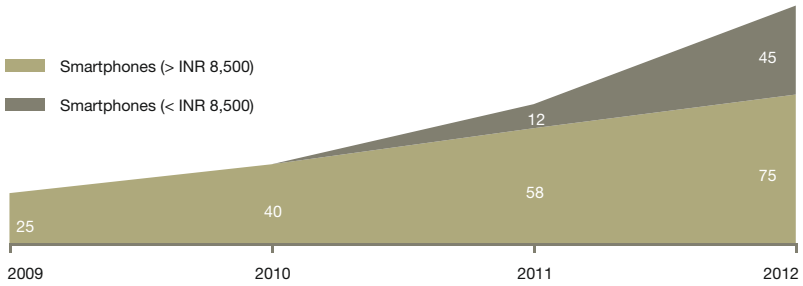
[2] Cisco® Visual Networking Index (VNI) Global Mobile Data Traffic Forecast Update
[3] China is now the largest market for smartphones in the world with a total user base of 275 million users

Smartphones still at an early stage of the adoption curve in India, but price is not a barrier anymore

The adoption of smartphones in India had been happening at a relatively slow pace, especially when looked at in context of the 700 million active mobile subscribers. The primary reasons cited for this were the high price of smartphones and the slow offtake of 3G connections.

China too had a slow start, but has picked up at a rapid pace over the last two years. The entire connectivity ecosystem has fallen in place with more lower-cost devices, better connectivity infrastructure and a few highly successful apps. And, the launch of lower cost smartphones has expanded the target market for smartphones in China significantly.

Exhibit 7 Composition of Chinese smartphone shipments (Mn)



Source: JP Morgan Nothing but Net Asia 2012

An elementary match-up of per-capita GDPs of China and India shows that the price barrier beyond which smartphone sales are likely to zoom could be around INR 4,000 for India. With the increasing availability of smartphones at prices below that level (INR 4,000) and the marketing dollars being invested behind these phones, the smartphone penetration in India has started to gain momentum.

In addition to smartphones, there is an increasing availability of “smart’ feature phones, which run on proprietary OS but allow the users to avail typical smartphone services such as 3G, third party browsers, and the commonly used apps (YouTube, Facebook and the messengers). These phones are blurring the boundaries between smart and feature phones, and are pushing the base prices towards INR 2,000 (in line with our expectations articulated in our previous report). A comparison of phones in different price ranges shows that lower end phones are also becoming feature-rich, leading to better user experiences.

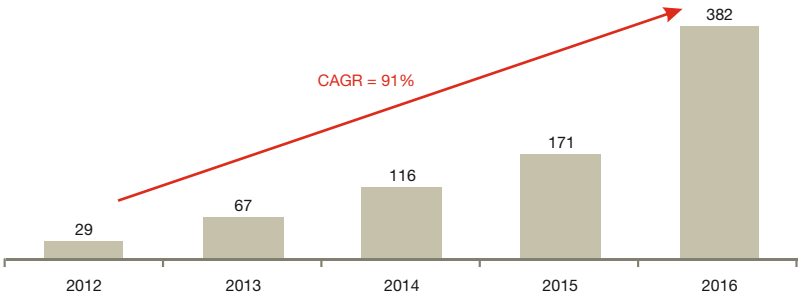
Exhibit 8 Feature comparison for phones in different price ranges

	PHONES			
FEATURES	**Nokia Asha 501**	**Micromax Smarty 3.0 A30**	**Samsung Galaxy S Advance**	**i9070 Apple iPhone 3GS**
Price (INR)	4,999	3,999	13,800	40,499
Email	✓	✓	✓	✓
Music and Video players	✓	✓	✓	✓
Display size (In)	3	3	4	3.5
Touchscreen	✓	✓	✓	✓
Camera	3.2 MP	2 MP	5 MP	3.15 MP
Expandable memory (GB)	32	32	32	32
Processor	N/A	832 MHZ	1 GHz	600 MHZ
OS	Series 40	Android v2.3.7	Android v2.3	iOS 3
WiFi	✓	✓	✓	✓
3G		✓	✓	✓
Browser	Nokia Xpress	Android	Android	Safari
Third party apps	Ovi Store Pre-installed: Facebook, Twitter, Youtube	Google Play	Google Play	App Store

Smartphone adoption expected to pick up and become a non-constraining factor for 3G adoption

The Indian smartphone market today resembles that of the feature phone market in 2006, with prices bottoming out and more variants getting added at lower price points. Marketing campaigns are visibly focused on exploiting this market fully – even Apple seems to be softening its price positioning for India. If the smartphone penetration grows in a manner similar to how feature phone market grew between 2006 to 2012, smartphone penetration will definitely not be a constraint for the growth of mobile Internet.

Exhibit 9 Number of smartphone users in India (Mn)



Source: IDC, Avendus estimates

Projections of smartphone penetration reaching 382 million by 2016 is aggressive given IDC's projections of 155.6 million smartphones to be shipped to India in 2016. We expect some of this gap to be filled by smart feature phones which boast similar features to that of the smartphones. Two of the leading handset manufacturers, Nokia and Samsung, are investing significantly to develop this segment.

Price wars at the top of the pyramid

Feature phones still have a role to play

While smartphones are clearly the future, we believe the feature phone market will continue to maintain a sizeable share of the market, especially in the low-price segment.

In the most mature mobile Internet market of Japan, smartphones accounted for just 2 million of the 90 million mobile users in 2007. Smartphone sales have surged post that and now account for around 48 million out of the total 107 million mobile Internet users. That still leaves a good 55% of the market on feature phones. Japan is not an exception. China also has more than half of its mobile Internet user base on feature phones.

Exhibit 10 Featurephones continue to maintain a sizeable market share

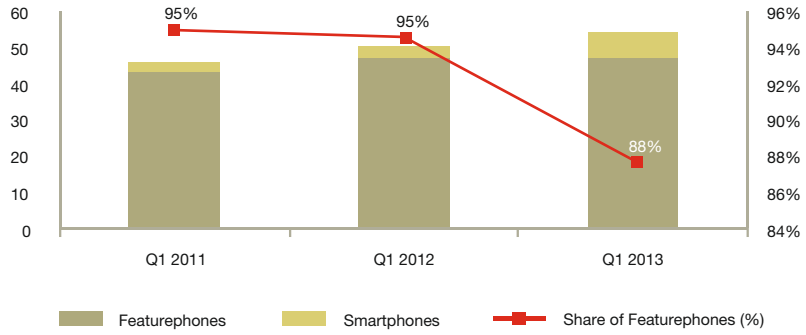
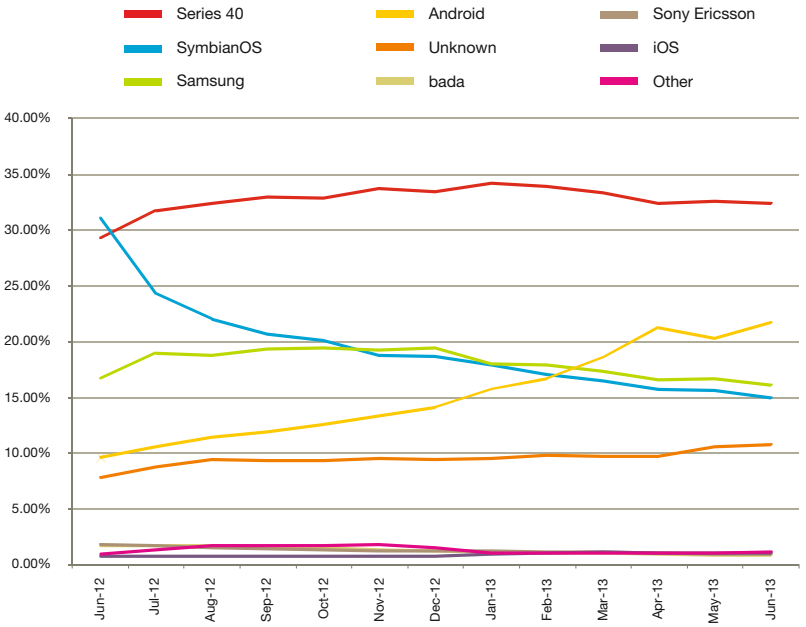


Exhibit 11 StatCounter Global Stats
Top 8 Mobile Operating Systems in India from June 2012 to June 2013

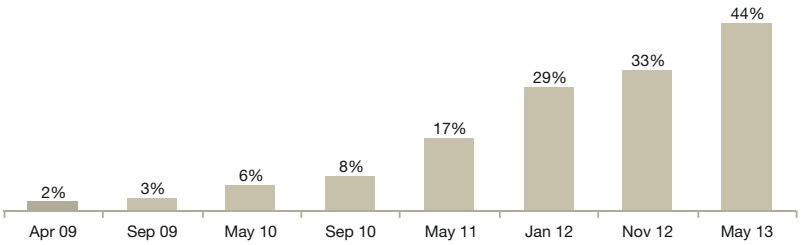


The mobile handset composition in India currently is skewed disproportionately towards feature phones which account for over 90% of all Internet capable devices. While smartphones are growing more aggressively, feature phone shipments still continue to be over 85% of mobile handset shipments on the back of a feature-packed, low-price proposition. Series 40, the operating system that powers Nokia Asha, continues to be the most popular operating system in Indian market. Expert estimates suggest that over 70% of data users and 50% of traffic still comes from feature phones, making it a segment one cannot ignore. While mobile-focused companies with a global tilt focus primarily on smartphones, several companies in emerging economies have leveraged their capability to serve feature phones as a critical differentiator to scale their businesses.

Watch out for tablets

Over the last few years, tablets have seen explosive growth in the US - with 44% of US adults having their own tablet/eReader. (Exhibit)

Exhibit 12 Tablet penetration in US (%)



Source: Pew Research

Adoption in India is still low, but is growing at a rapid clip. It may be too early for business models to be built around tablets, but several start-ups have started building apps for tablets with a dual focus on the Indian and overseas markets.

Awareness and buzz around tablets in India has been high largely due to the high voltage launch of the low-cost, government-subsidized tablet (Aakash) and the political controversies that ensued around it. Perhaps more effective has been the launch of other low cost tablets by players like Micromax in the sub INR 5,000 price range. There are already over 10 tablet variants from different players priced below INR 5,000, with the lowest priced one at INR 3,490. The introduction of mini-tablets by Apple and Google Nexus is also likely to add to the excitement.

Total tablet sales in India grew from 1 million in 2011 to around 3 million units in 2012. This number is further expected to double in 2013 to reach 6 million units. Education and entertainment are expected to be two key application areas that will drive table adoption. If the growth of tablets pans out as expected, the 10 million estimated users by end 2013 will provide an attractive potential for app developers to target.

The challenge of 4G capable devices

While the potential for 4G gets talked about a lot, the device environment poses a significant challenge for mass scale up of the technology. There aren't many mobile phones today which are 4G enabled. Airtel offers two kinds of 4G devices for customers – dongles and Customer Premise Equipments (CPEs). The Airtel 4G CPE Router offers a home WiFi solution wherein multiple devices, including 3G smartphones and 3G tablets, can access Internet at 4G speed. It is today charging INR 5000-6000 for a 4G CPE device and INR 1500 for a 4G dongle which is not conducive to mass adoption of the technology. In order to provide an impetus to its 4G subscriber base, Airtel started offering free 4G dongles under its new 'breakfree' plans for first 60 days as an introductory offer starting July 2013. Reliance is rumoured to be working towards launching MiFi devices (which would convert 4G signals to wi-fi signals) at price points which are likely to be significantly cheaper than Airtel 4G devices.

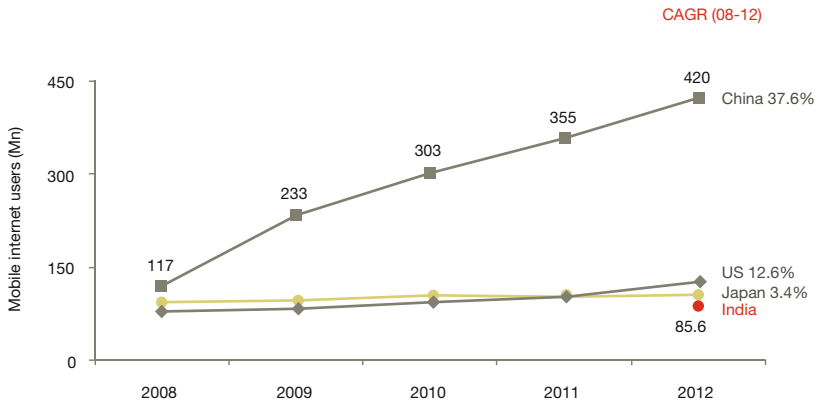
The rapid rollout of 4G services globally (China Mobile's is expected to sell 100 million 4G connections by 2013) and the announcements by Qualcomm and MediaTek abouting launching affordable 4G chipsets is likely to have a cascading effect in bringing down the prices of 4G devices. However, it remains to be seen whether India will leapfrog directly to 4G technology for mass adoption of mobile Internet or whether mass adoption of 3G will precede the success of 4G networks.

Connectivity

Mobile Internet users growing at a rapid pace across the world; India has 85.6 million users

Mobile Internet adoption has continued to grow worldwide at an impressive rate of 36% in 2012 to reach 1.5 billion users, from 1.1 billion in 2011. That accounts for over 60% of the global Internet user base of 2.4 billion. This momentum is expected to continue, especially driven by growth in China and India. China has galloped to become the largest mobile Internet market in the world with 420 million users (31% penetration).

Exhibit 13 Growth in mobile Internet users (Mn)

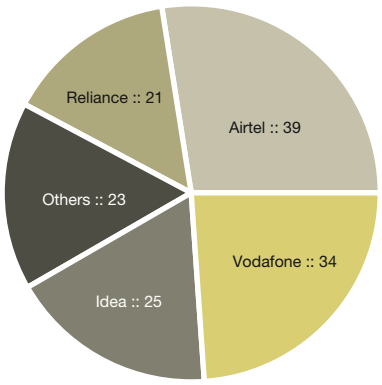


Source: CNNIC, Japan communications ministry, e-Marketer

Mobile Internet users in India have grown to 85.6 million active users by March 2013. This translates to penetration levels of 12.2% of the active mobile voice subscribers or 6.9% of the total population.

Reliable estimates on the growth of mobile Internet user base in India are hard to find. Some telcos have started publishing figures of active data users. These are users who have used mobile Internet at least once during a month.

Exhibit 14 Mobile Internet connections in India in March 2013 (Mn)



Source: Company reports, Avendus estimates

The definition of a mobile Internet user is perhaps lax, as it counts any unsuspecting user who clicks on a link by mistake. Experts believe that the actual number of relevant mobile Internet users or the really active mobile Internet users (who use mobile Internet intentionally and consistently) could range anywhere between 25% and 90% of the reported numbers. This percentage is also expected to vary significantly between 2G and 3G users, due to the higher availability of zero-fee 2G connections.

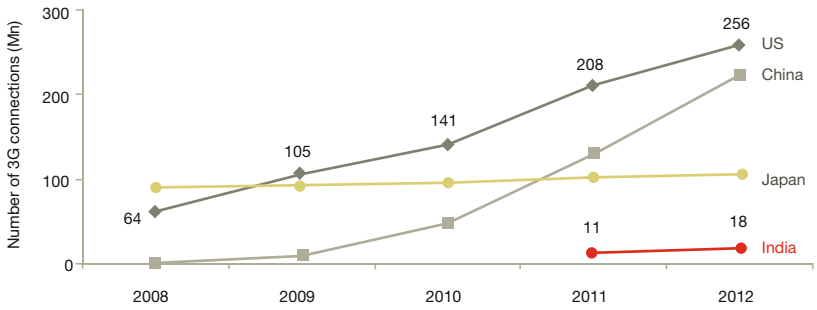
Our estimates suggest that this number is at 85.6 million active users as of March 2013.

Globally, 3G connections have been witnessing rapid adoption

While the overall mobile Internet user numbers are important from the perspective of reach, it does not convey the entire story. Not looking at how the quality of connections (2.5G vs 3G) stack up, is the same as equating broadband and dial-up connections for the e-commerce market. In our last report, we had shown how the PC broadband penetration had a significant impact on the size of the e-commerce market across US, China and potentially India as well.

In mature markets like Japan and the US, 3G and mobile Internet have become synonymous with each other; while in China almost half of the mobile Internet connections are still driven by 2.5G connectivity. In Japan and US, the number of 3G connections tends to be higher than mobile Internet user numbers, due to the usage of multiple devices (phones, tablets, gaming consoles, etc).

Exhibit 15 Number of 3G connections (Mn)

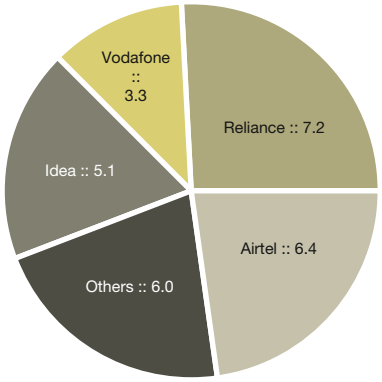


Source: Informa WCIS, Chinese telecom operators

India has 22 million active 3G users, and is experiencing a familiar global stutter

In India, 3G connections have been slow to pick up, with just 22.7 million and 28.0 million 3G subscriptions reported in December 2012 and March 2013, respectively.

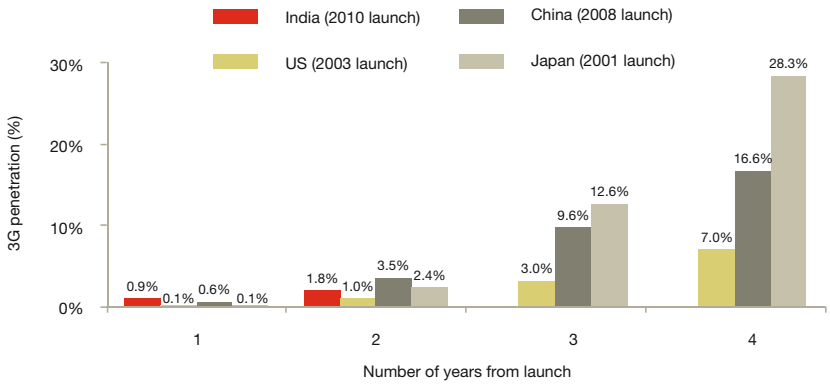
Exhibit 16 3G subscriptions in India in Mar 2013 (Mn)



Source: Company sources; Avendus estimates

Unlike 2.5G connections, around 80-90% of the 3G connections are expected to be active, as most of these come with a monthly charge and are linked to a smartphone. This pegs the active 3G subscribers in India between 22 and 25 million. While penetration of just 22 million users appears disappointing, the comforting fact is that almost every other 3G market of scale faced a stutter before picking up pace in 3G user adoption.

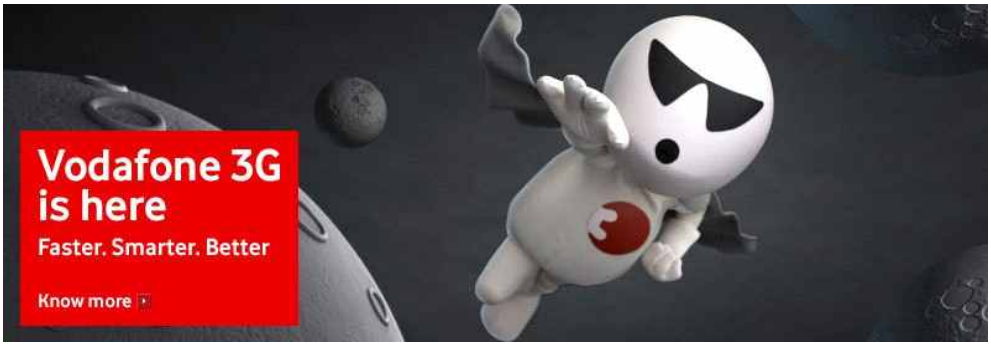
Exhibit 17 3G launch – The global stutter



Source: Informa WCIS, Chinese telecom operators, Indian telecom companies' results

While the reasons attributed to the slow growth differ from country to country, one common theme across countries has been the time it takes for the ecosystem (devices, connectivity and use cases) to fall in place. And the trigger point too was different across countries, with iPhones doing the trick for the US, low-cost smartphones and compelling use cases leading to the rise in user adoption in China, and affordable high quality connectivity and content delivering the desired results in Japan.

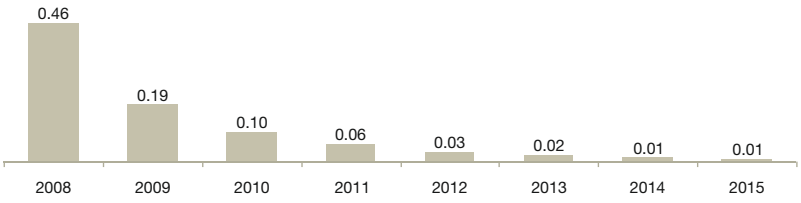
Waiting for escape velocity



Cost of connectivity is already fairly low; focus to be on innovation rather than additional price cuts

Global trends indicate that reducing 3G prices have had a significant role to play in its rapid adoption of 3G across the world. The "Per MB" (global average) price which was hovering around half a dollar in 2008 has come down to 3 cents now.

Exhibit 18 Worldwide 3G data price per MB ($)



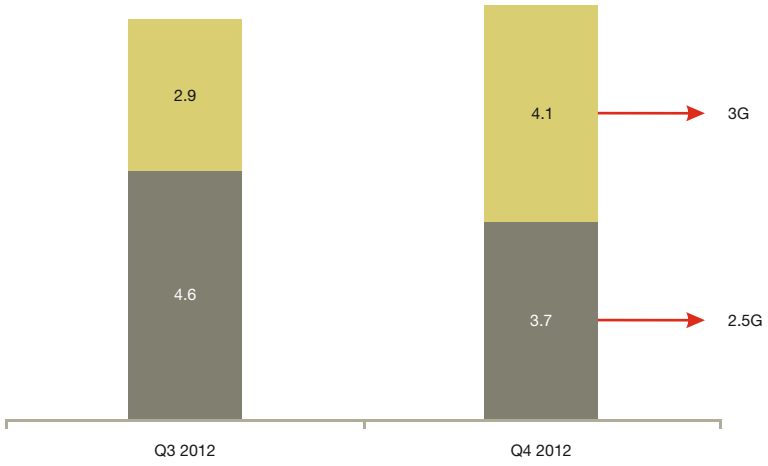
Source: Portio research

Unlike PC-Internet[4], affordability of 3G connectivity has improved significantly in India. Most mobile operators have reduced their 3G data prices by up to 70% during 2012. The reduced tariffs in India compare favorably with that of the global tariffs – Airtel and Idea reported per MB realization rates of INR 0.32 for September 2012. That is less than a fifth of the global average. Airtel's realization dropped further to INR 0.25 per MB by September 2013, indicating the impact of price reduction.

2G prices too have softened post the reduction of 3G prices, to reflect the difference in quality between the two services. This reduction and the increased marketing push for data led to higher uptake of 2G in the third quarter of 2012. This trend was reversed in the last quarter of 2012, aided by innovative 3G pricing plans and focused campaigns targeted at moving the 2G user base to 3G.

[4] PC-Internet broadband prices in India are amongst the highest in the world. On top of that, the data download limits generally available are quite low – a 40GB plus connection which would be amongst the basic data connectivity options in some developed countries is hard to get in India. Combined with coverage issues, these factors constrain both penetration and usage levels of PC-Internet.

Exhibit 19 Mobile Internet subscriber additions in India (Mn)



Source: Company reports, Avendus estimates

Entry pricing is an area which has received special focus from Indian telecom players; there are now packages available at prices as low as INR 5 (~ $ 0.10).

3G services are considered to be premium services offered on mobile phones and hence their rates were expected to remain higher than those of the 2G prices. However, Reliance Communication dropped 3G data rates close to 2G data rates of INR 123 per GB as of September 2013. Most telcos have indicated that prices have bottomed out for 3G and that further action would primarily be focused on pricing innovation rather than price cuts.

While 3G pricing wars are on the anvil, there is cause for some optimism on 4G prices – with Tikona rumored to be offering rates ranging from 2 to 5 paise per MB for 4G services. Airtel's 4G prices are in the range of 10-13 paise per MB. In a move to bolster the uptake of its 4G services, Airtel lowered 4G data charges by 31% in June 2013. To add to the above, the entire market seems to be waiting with bated breath for the launch of Reliance Infotel's 4G services. If Reliance's track record is anything to go by, we can surely expect a price war for 4G services which would come as a boon for the consumer (and for broadband penetration in general).

Quality of connectivity is a significant concern

While price cuts have been encouraging, there are significant quality issues that remain to be addressed for 3G. The notion of quality includes quality, consistency and scalability.

Coverage: Only ~96,000 of the 736,000 telecom towers in India are 3G enabled. The major Indian cities themselves have 150,000 towers between them, indicating the sparseness of 3G coverage across the country. Several urban areas either do not have access to 3G spectrum or get much lower speeds than expected. Frequent dropping of 3G connections leads not only to a poor quality of service for customers, but is also a huge drain on battery life of handsets.

Consistency: For maintaining consistent speeds, it is also important for the towers to have a fiber optic backbone linking the towers to support high speed broadband. Presently about 30,000-35,000 towers have a fiber optic backbone and the rest are connected by microwaves resulting in inconsistent speeds. As a comparison, 90% of cellphone towers in China have a fiber optic backhaul in place.

Scalability: Only 5MHz of spectrum has been allocated by the government for 3G compared to the 20 MHz in US/ European countries. This creates a severe limitation on the spectrum available for service providers. This constrains peak usage and impacts the scalability of the offering.

While bandwidth may continue to remain a constraint, coverage and consistency should hopefully improve as telecom operators increase their pace of investments in 3G infrastructure. Chinese telecom operators have invested over INR 248,000 Cr in building 3G infrastructure. Similar estimates were doing the rounds for India as well around the time 3G licenses were being awarded. However, actual investments seem to have been significantly lower than those numbers. While, there is no definitive information on investments made by telecom operators towards 3G infrastructure, market sources indicate that Vodafone, Aircel and Tata Docomo have each spent around INR 2,750 Cr while Idea has invested around INR 4,200 Cr on 3G infrastructure. The total amount spent is a fraction of the original estimates, but most operators are signaling an intent towards reversing this trend.

The Telecom Regulatory Authority of India (TRAI) is also trying to drive an improvement in the quality of wireless data services through policy intervention. They have announced a regulation that requires operators to track and report performance against 8 key parameters - covering the entire service from activation to speed, latency and drop rates. However, the benchmarks are fairly low on most parameters and more importantly, there doesn't seem to be any consequences for underperforming against those benchmarks. The most significant achievement of this regulation would be to get a standard measurement set-up in place across operators. One can hope improvements will ring in once there is a mechanism to measure current quality.

Exhibit 20 Standards of quality of service for wireless data services

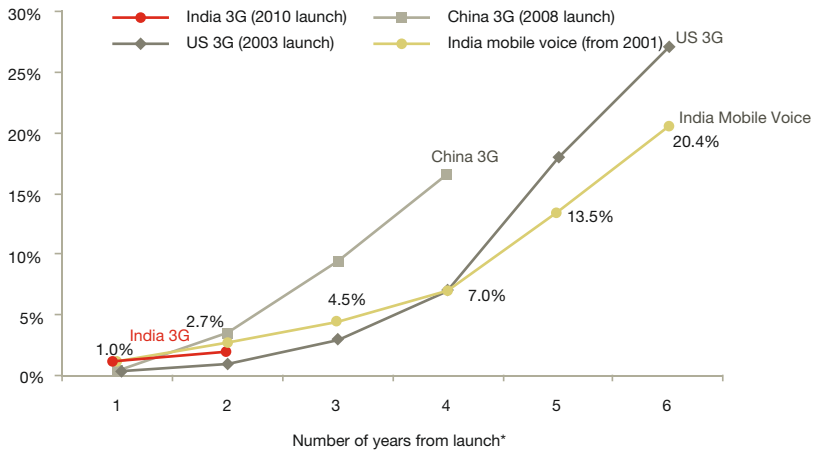
#	Name of Parameter	Benchmarks
1	Service Activation/ Provisioning	Within 4 hrs with 95% success rate
2	Successful data transmission download attempts	>80%
3	Successful data transmission upload attempts	>75%
4	Minimum download speed	To be measured for each plan by the service provider and reported to TRAI
5	Average Throughput for Packet data	>75% of the subscribed speed
6	Latency of Data	<250ms
7	PDP Context Activation Success Rate	≥95%
8	Drop rate	≤5%

Source: TRAI

In summary, 3G-capable device costs have been falling and newer better devices have been launched over the last 12 months. Connectivity costs too have come down and are amongst the lowest in the world. Google and Facebook, players with the largest stakes in the market, are showing eagerness to expand the market and are creating compelling use cases (covered in detail later). The only real roadblock seems to be quality of connectivity. With more investments being planned by operators and the necessary nudge coming from TRAI, one can hope that too will fall in place in the near future. That will then create the environment for rapid acceleration in penetration of 3G connections.

Projecting Indian 3G adoption

Exhibit 21 Potential 3G evolution trajectories in India based on global comparisons[5]



Source: Informa WCIS, Chinese telecom operators, TRAI

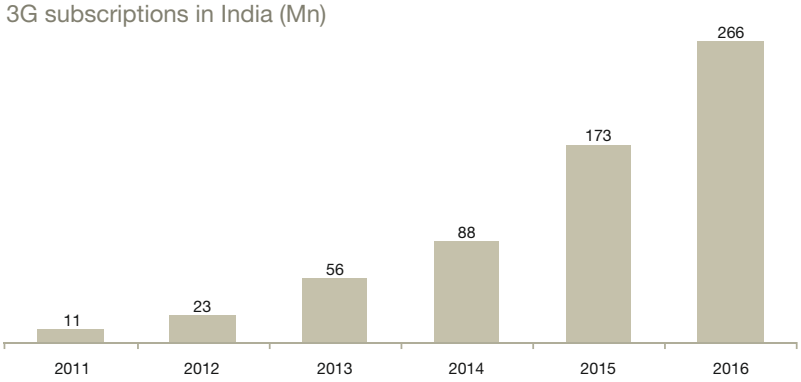
As Japan (trajectory as per Japan's growth is not shown in the exhibit above) is normally considered an outlier for anything mobile, the 3G adoption rates of China and US are two potential paths India could take in the future. Considering mobile adoption rates in India resembled China more than the US, one can argue that 3G adoption curve in India is also likely to follow that of China. However, Indian telcos don't appear to be in a position to match infrastructure investments that enabled the 3G boom in China.

The Indian mobile subscriber growth could be the other path which 3G adoption could take since in that case too, growth accelerated as various elements of the ecosystem fell in place. India's troubles with the wireline phone connections and the respite provided by wireless connections closely resembles that of wireline broadband's travails. 3G could well be the mobile phone of data communication in India.

Though things could change rapidly in wireless adoption, we are taking a more conservative view of the market. The analysis indicates that Indian 3G penetration is 10 years behind that of the mobile voice adoption rates. This is the most conservative amongst the three options considered. Based on this, Indian 3G subscriptions could expand to 266 million connections by 2016. We believe that there is a lot of upside to this, considering that the current active mobile Internet subscribers (2.5G+3G) add up to 85.6 million.

[5] For India mobile voice, year 2001 has been used as the starting point, as that most resembles the current 3G numbers

Exhibit 22 3G subscriptions in India (Mn)



Source: Telecom companies annual reports, Avendus analysis

4G continues to be a wildcard

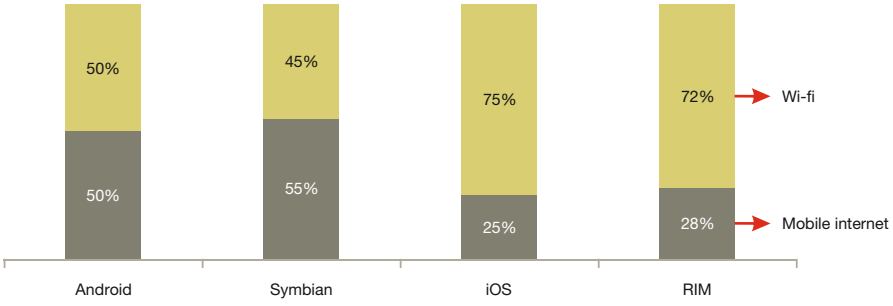
Other than 2.5G and 3G, the potential of 4G has been a talking point for some time now. The kind of speeds promised by 4G could make it a game changer in the space. But, while Airtel has launched 4G in Bangalore, Kolkata and Pune around mid-2012, the device costs and data plans have looked quite expensive compared to other alternative data options available. But this is changing fast with Airtel pushing 4G uptake with free dongles and reducing data charges by ~31%. The low cost data plans announced by Tikona and the much-awaited launch of 4G by Reliance Infotel is most certainly going to shake up the market.

'Fixed Internet' is the most used 'mobile Internet'

While the world focuses on 2.5G, 3G and 4G connections, it is critical to take stock of the usage of wi-fi networks to access the Internet over mobile devices. The usage numbers on wi-fi connections remain high even in the US despite a high penetration of 3G connections. 37.2% of U.S. digital traffic from mobile phones comes through a wi-fi connection. On tablets, this numbers shoots upto 90.8%. In fact, most devices automatically switch to wi-fi connections when available (in order to save on data costs).

In India too, this number remains fairly high with around 77% of the overall pages viewed on the mobile being driven by wi-fi connections.

Exhibit 23 Share of mobile page views by type of connection – July 2012 (%)



Source: Comscore

Though the process of accessing Internet does not change much depending on whether it is done through a mobile or wi-fi connection, there are two major implications of users accessing the Internet on their mobile devices through wi-fi connections. Firstly, there is a significant upside to the mobile Internet user base of 85.6 million discussed earlier – as there are several wi-fi only mobile Internet users. Though there are no concrete estimates around the same, discussions with market players indicates that this number could contribute another 6-10 million users to the mobile Internet base. The second and more significant part is that almost all users accessing the Internet through wi-fi connections do it through a smartphone (or tablet) and typically have heavier usage patterns. Mobile is not the first screen for these users. They are expected to carry their comfort of PC-Internet onto the mobile device. Most companies target these users first, and they are expected to form the first wave of adoption for most forms of commerce on the mobile. Players providing wireline broadband service viz. cable broadband, could be a good channel to offer compelling services to consumers, especially those involving heavy data usage like mobile video, music and gaming.

Use Cases

"Strong use cases" play a significant role in driving user adoption of mobile Internet. However, its impact is often neglected in most analyses around adoption statistics. The difference between 143 million mobile Internet subscriptions (those who have a mobile Internet connection and can access mobile Internet if needed) and 85.6 million active mobile Internet users (those who really use mobile Internet), is primarily driven by this factor. Those who have everything in place to access mobile Internet are most likely not using it regularly because they do not find (or are not aware of) a strong value proposition to do so. Strong use cases play a critical role in eliminating this issue. They almost force a user to learn the device and the technology. E-mail played such a role in the growth of PC-Internet, and IRCTC caused millions of Indians to adopt e-commerce for the first time.

Compelling content is essential

Such use cases can only come from content – whether it is a social network which a person checks every five minutes, an app which allows free access to 30 newspapers for a compulsive newsreader, a website which gets a reluctant kid hooked to a mathematics learning program, or live cricket on the move for a cricket-crazy country.

Five categories dominate the Indian content landscape – cricket, music, news, videos and games – and several players are approaching them from different angles. Indian game developers like Nazara and Indiagames are working on cricket gaming. Players like Saavn, Raaga, Gaana and Dhingana in the music segment have spruced up their mobile offerings. Youtube remains the most watched video channel, while players like Apalya, iStream and Vuclip are attempting to address premium video needs of consumers. While Newshunt offers aggregated news from multiple print media companies, players like Mobstac help traditional print media companies move their content onto the mobile platform. And companies like Olacabs and TaxiForSure are attempting to change the taxi landscape in the country by driving adoption through mobile devices.

These companies fulfill interesting content needs. However, they are relatively small in scale today. Most of the traffic on mobile is actually garnered by global majors and large PC-Internet players. The top 10 mobile websites in India in September 2012 are Google, Facebook, Youtube, Wikipedia, Yahoo, Cricbuzz, Mobile9, Zedge, Getjar and Indiatimes. The three lesser known names – Mobile9, Zedge and Getjar provide downloadable content for mobile phones like apps, wallpapers and ringtones. The top Indian players include Indiatimes, Rediff and In.com, indicating that some Indian online players are getting their act together on mobile as well.

Over 90% of India's top 100 apps belong to the global top 1000 apps. This shows that global content is working better for the Indian mobile audience than it did for the Indian PC audience. There are over 700,000 apps in both Apple App store and Google Play providing enough content to engage users who come onboard. Leading apps in India include Whatsapp, Facebook, WeChat, LINE, UC Browser, Facebook Messenger, Temple Run and

Truecaller. But amongst this, there are several local apps making a cut in the Indian market. Some of these featuring in the Top 100 list are listed in the Exhibit below.

Exhibit 24 Leading Indian apps (Google Play)

Mobile App	India Rank
Dhingana	22
Paytm	29
Saavn	42
Zomato	56
ICICI-iMobile	74

Source: Prioridata (Xyologic)

Initiatives like Google's GOMO, which educates businesses about the merits of engaging with their stakeholders through the mobile platform, should hopefully lead to a further improvement in content availability. GOMO also offers free testing of existing mobile websites, tools to build a new mobile website and also a list of developers who create mobile websites. Google had a partnership with Duda mobile to offer free mobile website creation and free services for a year. In India, the program was expanded further with addition of new partners including Affle, AD2C, Mobstac, Mobsters and Netbiscuits.

While content exists and is improving, questions about 'the killer use case' that will get users onboard in droves still remains. Markets like China and Russia have had to search for that critical app which could get newer users on to mobile Internet. In India's case, it looks like the answer may lie in a fairly obvious place – Facebook.

Facebook, Google and Whatsapp lead the charge in India

Facebook appears to be the messiah for the Indian mobile Internet space. With over 60 million users in India, 30% of Facebook's new users come onto the platform through mobile devices and 30% of the total user base access the platform only through their mobile phones. Facebook has been investing aggressively to increase its mobile user base in India through handset manufacturer/operator tie-ups and free data top-ups for new registrations on mobile. All of this builds a strong case that Facebook could be the killer app that gets customers to adopt smartphones in India. Messenger services like Whatsapp, Nimbuzz and WeChat are also gaining significant traction and adding to the list of compelling use cases for the Indian mobile Internet user. With Google also getting over 40% of its searches from mobile, global players appear to be leading the charge in driving mobile Internet adoption in India.

A Shift in Demographics, and New Opportunities

Mobile Internet is not just the next version of PC-Internet with a broader reach. It brings with it certain fundamental differences in the target market, and hence businesses would have to adapt to the changing landscape rather than merely extending their PC-Internet offerings to mobile. The differences between the two markets come from a shift in demographics, and the arrival of the mobile-only Internet users.

Demographic shift

Data from Comscore indicates that the highest penetration of PC-Internet is in the 25-34 age group. And surveys such as Nielsen Informate indicate that the highest penetration for mobile Internet is in the age group 15-24. This has significant implications, as the younger age group tends to be more engaged with the medium and values convenience more. This is likely to create additional opportunities for advertising and commerce.

Mobile-only Internet users

Mobile-only Internet users are those who either do not or very rarely use a desktop/laptop to access the Internet. Mobile phone is the primary means of Internet connectivity for them. This is a common phenomenon in developing countries, where PC penetration is limited and mobile-only Internet users tend to be under 25 years. In developed countries, mobile-only users are typically older people and lower income households. While the share of mobile-only Internet users in developed countries is in the range of 20%-25% (UK-22%, US-25%), it is far higher in developing countries (China-38%, South Africa-57%, Indonesia-44%) clearly indicating that mobile Internet is bridging a gap in these markets.

Certain estimates suggest this number could be even more than 50% for India. This has significant implications. These consumers, being first time Internet users, need more intuitive designs to be able to relate to and engage with the content. At the same time, their time spent is split between lesser number of devices, increasing the stickiness of the potential opportunity.

Understanding these users becomes critical to companies who look at mobile Internet as the primary service delivery medium. A research conducted by OnDevice Research in China outlines some critical parameters which differentiate mobile-only users. As per the study:

- 65% are under 25 years of age, and 61% have annual household income of less than 5000 Yuan (INR 42,500), but 27% access mobile web at least for an hour a day
- 39% of rural users access Internet on mobile as they do not have PC access, while 40%

access it on mobile because it is easier/ faster/ cheaper
- 90% play games on their mobile, with 40% playing every day; 89% access social networking sites on their mobile, with 53% accessing every day

This re-emphasizes the fact that mobile-only Internet users are typically younger and are highly engaged with their mobile phones. While cost remains a key factor in rural users going mobile-only, urban users are driven more by convenience.

To reiterate what we said earlier, mobile Internet is not just an extension of PC-Internet, but a new world in itself – a fast growing one at that.

Monetization Mechanisms

Eyeballs or Dollars?

- Mobile Internet = PC-Internet+MVAS
- Mobile Advertising becomes a Reality
- Off-Deck Paid Content takes off in India
- Mobile Payments Continue to Develop but “Killer App” remains Elusive

The big question about mobile Internet has revolved around the monetization potential of this channel. Like in early days of PC-Internet, there is a fair degree of skepticism about whether page views can be converted to dollars. Google and Facebook have had to face tough times convincing people that it can be done. However, both of them seem to have gotten more comfortable with their increasing mobile usage, and during 2012 have demonstrated that there indeed is a light at the end of the mobile monetization tunnel. Their success bodes well for the global mobile advertising industry.

There are several other positive indicators. After a long gestation period, M-commerce is showing signs of improving monetization, and mobile content monetization has been skyrocketing with app stores continuously halving the time to the next billion app downloads (and revenue dollars). In this section, we've tried to take a look at the revenue models (advertising, paid content and commerce) which form the pillars of the mobile Internet ecosystem, their evolution globally and implications for the Indian market.

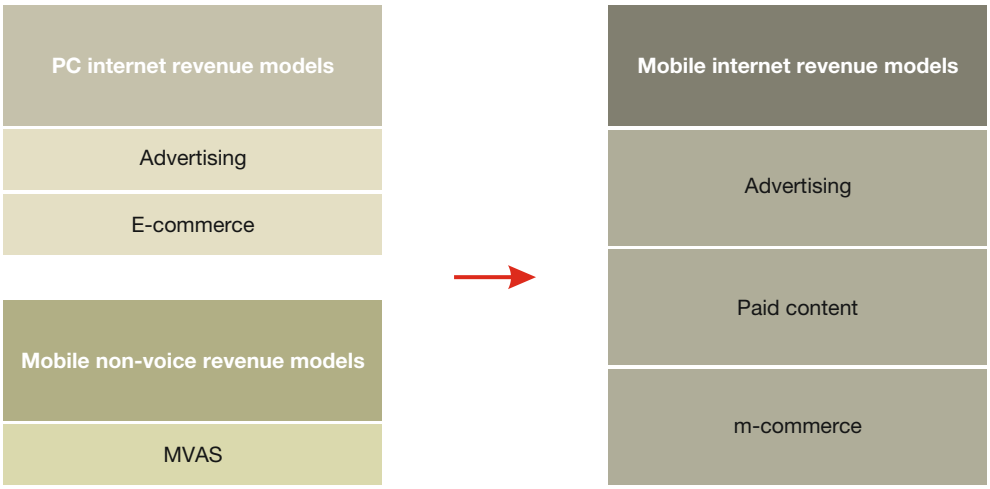
Mobile Internet = PC-Internet+MVAS

Mobile is the fastest growing sub-segment across digital advertising, paid content and digital commerce

Until recently, the only revenues generated through mobile in the Indian digital space came from "on-deck" services offered by telcos through their portals. This led to the formation of an industry more popularly known as mobile value added services (MVAS). In this model, content developers distributed their content to consumers through telecom operators, typically facilitated by aggregators who provided the technology solutions required and manage the billing and CRM process. Also, since the operators had complete ownership of the customer, they kept a lion's share of the revenue generated (70-85%), leaving a very small portion to be split between the aggregators and content developers. Not surprisingly, this resulted in few scalable business models developing. Distribution of music as caller ring back tones (CRBT) was an exception as it caught the fancy of consumers early on in the mobile adoption curve. Even in the case of CRBT, revenues generated for the music label companies were a small fraction of what consumers paid for the service.

Globally, the trend has shifted towards growth of "off-deck" services that are offered by content developers directly to consumers i.e. without going through telecom operators. This has been largely driven by the advent of smartphones and third party app stores (like iOS and Google Play). The PC-Internet segment has seen monetization through three revenue models – advertising, paid content and commerce. All three models are beginning to witness meaningful traction on mobile. In the US, mobile advertising, paid mobile content and m-commerce have become the fastest growing segments in the online digital advertising, paid content and digital commerce markets respectively. By 2016, mobile is projected to account for 24% of digital commerce, 38% of digital advertising and a dominant share of the paid content market in the US.

Exhibit 25 Mobile Internet revenue models



Just to share a perspective of the level of scale mobile monetization has already achieved:

- For eBay, $13 billion of their global sales of $75 billion came from mobile devices
- Google's mobile businesses – paid content and advertising – had an annual run rate of $4 billion in Q1 2013
- China's m-commerce GMV increased 3.5 times between Q1 2012 and Q1 2013 to reach an annualized run rate of $17 billion

Early-movers are beginning to taste success in India – especially in content models

India, though a few years behind on the mobile monetization curve, seems to be following suit. Mobile advertising is beginning to grow at a fast pace and m-commerce is witnessing early signs of adoption. India's leading movie and event ticketing player (Bookmyshow) and one of India's leading online travel aggregators (Cleartrip) have seen revenue through mobile devices grow to more than 25% and 12%, respectively, of their total revenue within a short span of time. One of India's leading e-tailing companies, Myntra has also seen revenues through mobile devices scale rapidly and expects it to grow to more than 20% of their total revenues by the end of 2013. Amongst mobile ad networks, Google, Komli, InMobi and Vserv have taken an early lead and are seeing rapid growth.

The real surprise package though is the paid-content market. While paid content models have existed in the online space in other countries for long, these models just did not work in India in the PC-Internet space due to widespread content piracy. MVAS was the only channel through which consumers paid for digital content, primarily because delivery of the service had to happen through telecom operators leaving limited scope for piracy. Now with smartphone adoption gathering pace, consumption of off-deck content is beginning to scale. What is driving adoption of paid content is the "freemium" model being adopted by most mobile app developers wherein they attract customers to download their apps for free

and then entice them to upgrade to a “premium” or paid model which is either free of intrusive ads (which are a part and parcel of the free version) or is far more feature rich. Though small in scale today, it is encouraging that the total paid app revenue from the iOS app store and Google Play in India crossed INR 150 crore in 2012.

One of the hurdles for off-deck content is digital payments. Most paid content transactions have been paid for through credit/debit cards or netbanking. The base of users transacting through their cards or through netbanking is fairly small today (estimated to be less than 25 million in total). This aspect is discussed in further detail in the section on mobile payments.

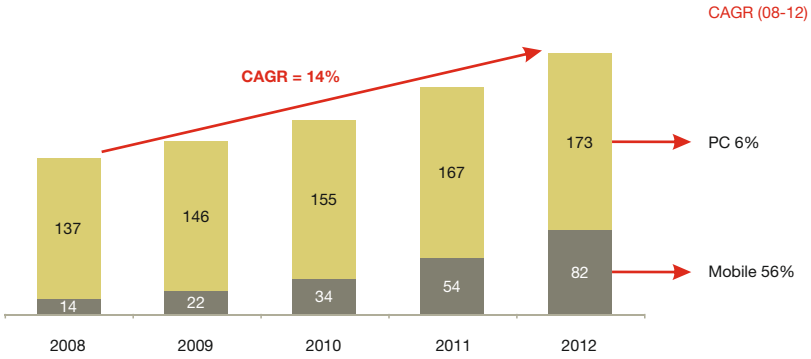
We’ve tried to take a closer look at each of mobile monetization models (advertising, paid content and m-commerce) in the sections below.

Mobile Advertising becomes a Reality

Timeshare of mobile Internet increasing rapidly across the world; India not far behind

Time spent on a particular medium is a leading indicator of advertising revenues flowing through that channel. Time spent on mobile Internet has been growing at a healthy pace globally. In the US, mobile Internet today accounts for almost a third of the overall time spent on digital media. This growth is expected to continue, aided by the growth in adoption of smartphones, tablets, 3G and 4G connectivity.

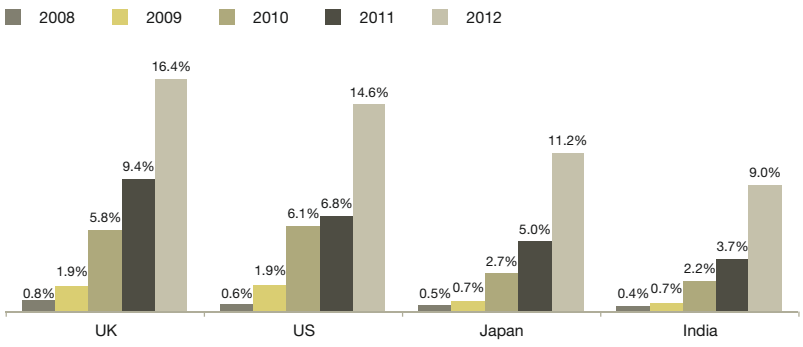
Exhibit 26 Average time spent per day on PC and mobile Internet in the US (Minutes)



Source: eMarketer

A similar trend has been witnessed across most global markets with around 10-15% of overall pageviews coming from mobile devices. In India, this number is estimated to be around 9% of the overall page views in 2012. Statcounter Global Stats[6] numbers indicate that the mobile pageviews in India have increased to over 50% of the total pageviews in 2012, but that does not seem to be substantiated from other sources.

Exhibit 27 Mobile Internet traffic (as % of overall pageviews)



Source: Comscore, Avendus estimates

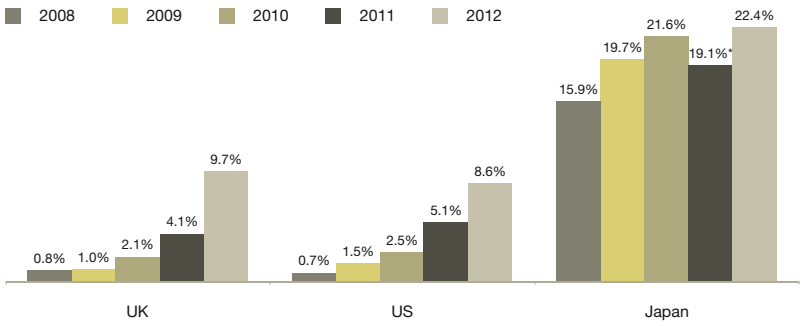
[6] Statcounter Global Stats tracks the page views on a select set of websites across the world, using its pre-installed tracking code, and publishes statistics about global and country-specific Internet usage trends

There are around 90 million PC-Internet users (with 40 million heavy users) and 86 million active mobile Internet users (with 22 million heavy users on 3G). Most countries have a similar split of Internet users and the mobile Internet share in these countries hovers between 10% and 15% of overall traffic. Given this, we are inclined to go with traffic estimates released by Comscore and Cisco which indicate that mobile data traffic in India is around 9% of total Internet traffic (2012). Cisco projects this number to grow to 28% of the overall traffic share by 2015 in India. As per Comscore data for March 2013, the share of mobile data traffic was already hovering at 14.2% which indicates that mobile traffic in India will most likely outgrow Cisco's projection of 28% by 2015. As per Comscore data for March 2013, the share of mobile data traffic was already hovering at 14.2% which indicates that mobile traffic in India will most likely outgrow Cisco's projection of 28% by 2015.

Revenues are becoming a reality

The big question of course is, whether this traffic can get monetized effectively through advertising. That question is beginning to get answered, as most global markets have witnessed an explosive growth in mobile advertising in 2012 (Exhibit). The global mobile advertising market, as estimated by eMarketer, is expected to reach $36.9 billion by 2016 growing from $8.4 billion in 2012

Exhibit 28 Share of mobile advertising (% of total digital advertising market)



* As per Dentsu, the reduction in mobile advertising spends in Japan in 2011 was due to the shift in advertising from feature phones to smartphones, and also due to the impact of the March 2011 tsunami on advertising

Source: IAB, Dentsu

At the forefront of this explosive growth are the two global giants - Google and Facebook. Both have pioneered mobile usage in their domains globally, both have witnessed a lot of skepticism around whether mobile is cannibalizing their higher value PC-Internet advertising market, and both have clearly demonstrated that there is money in mobile and that it is the future. We take a brief look at the successes of these two players on the mobile advertising front.

The Google Story

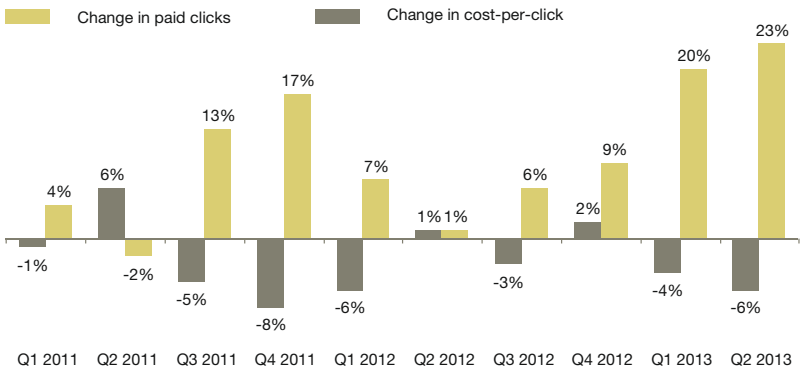
From domination to well… increased domination

Google dominates the search market across the world, and more so in India. Google's market share of search has hovered around 90% globally, with Bing, Yahoo! and Baidu competing for the second spot. Baidu, the Chinese search engine, is one of the very few search engines which have challenged Google. That too has been more due to regulatory issues. Google remains the undisputed leader in the search world on PC-Internet.

The quality of search results has been the key driver in Google reaching its dominant position on the Internet. On the mobile, they have built additional barriers with the launch of Android - the mobile operating system that is distributed free and usually comes with Google as the default search engine. The other dominant platform iOS also currently provides Google as the default search engine. This has led to even more dominance of Google on the mobile search front, with estimates that Google holds around 95% of the mobile search market. Mobile search already accounts for around 27% of all searches for Google, and the number is growing rapidly. Google has been a leader in mobile monetization accounting for 54.5% of the total mobile ad spends in the US, as against 40% of the total digital ad spends in 2012.

To provide some more context, Google has seen major reverses in its share price in recent quarters due to declines in its cost-per-click value since 2011 – with only the occasional increase. The two major reasons cited for the same are the growth in number of clicks on mobile and in the emerging markets – both of which yield much lower returns. Google's cost per click value had seen consistent increase over the last two years before it started declining.

Exhibit 29 Change in Google CPC and aggregate paid clicks (% change from previous quarter)



Source: Google quarterly reports

Several reasons have been cited for the lower cost per click value on mobile phones. Advertiser adoption of mobile has happened at a much slower pace than that of consumers. Mobile ads are not seen as an equivalent or a substitute for PC-Internet and

are getting used very differently from PC ads. Advertisers are therefore not getting on to the bidding game for mobile as yet. Since the supply of mobile clicks far outstrips demand at this point, it brings down prices considerably. This was even perceived to be a threat to Google's business model, as more and more of its lucrative PC-Internet market gets eroded by the lower value mobile search market.

Google talks about mobile being at a stage where PC search was in 1999 - mobile queries are growing consistently, while mobile monetization techniques are getting fine-tuned. They also talk about the system being made simple to make it more intuitive for advertisers to manage campaigns. Consequently, they have launched several initiatives to check the declining trend in CPCs, including some aimed at building awareness about the mobile ecosystem among publishers and advertisers.

Along with that, Google has also added its Admob inventory (for advertising on mobile apps) into Adwords, making it possible for advertisers to plan their campaigns across screens from a single interface. The company has also announced major changes in Adwords in 2013, which would lead to a much simpler campaign management experience for mobile campaigns. The objective is to make mobile a part of all campaigns by default, and for mobile optimization to be done automatically. Other than these changes, mobile's unique advantages are also helping it gain advertising traction, such as the click to call and click to map options. Click to call is estimated to generate around 15 million calls every month.

Despite its various initiatives, Google's Q2 2013 results reported CPCs having declined both y-o-y and q-o-q due to the increasing share of mobile advertising where CPCs are lower. While there is a huge supply of mobile ad inventory, the pool of good ad inventory is limited. Google has its work cut out to try and reverse this trend.

India is an important market for Google, and that is not a bad thing

In India Google derives over 40% of its total search queries from mobile. Over 30% of the total shopping queries in India were generated from mobile devices, doubling during the course of the year. Google also has significant reach on mobile apps, with India being the second largest market for Admob[7]. Considering Google acts as a gateway to the Internet for a large portion of Indian consumers, it will have a significant role to play in the evolution of the Indian mobile Internet market.

And then there's the Facebook story

Google's story was simpler. They were seeing both user and revenue traction on mobile, but the monetization metrics needed some repair work to show that mobile would add to the mix and not subtract. Facebook on the other hand, did not have a monetization mechanism on the mobile at the start of 2012, yet had large portions of their traffic going mobile. While their detractors were abuzz with doomsday stories, Facebook took up a massive transformational journey to become a mobile company which understood mobile monetization and which promoted mobile traffic growth.

[7] Acquired by Google for $750 Mn in 2009

"Facebook is a mobile company"

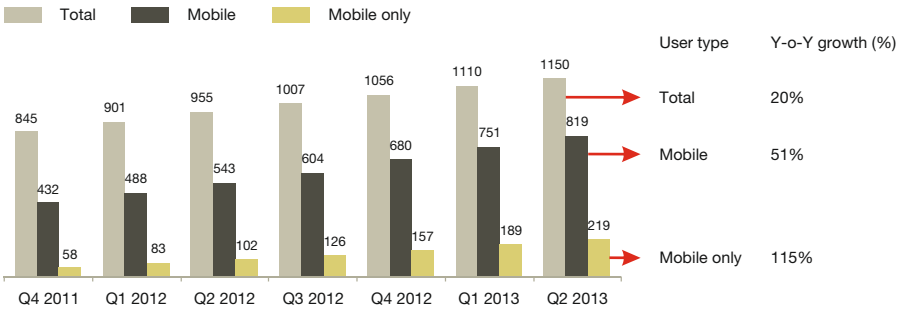
While social networks account for 20% of total PC-Internet time globally, that number increases to 30% on mobile devices. Facebook accounts for a major portion of that 30. Consequently, the implications of Facebook's moves on the mobile environment are huge, both from a business and customer perspective. This is what Mark Zuckerberg said in January this year[8]:

"Today, there is no argument, Facebook is a Mobile company… Mobile is the perfect device for Facebook for three reasons; it allows us to reach more people, we have more engagements from the people who we reach, and I think we'll also be able to make more money for each minute people spend with us on their mobile devices."

And Facebook has made inroads in all these areas in 2012.

- The number of mobile users for Facebook has increased significantly, and has overtaken the number of PC users for the first time
- Facebook accounted for 23% of the total time spent on apps by mobile Internet users in the US, its largest market; the second most engaging app was Instagram[9] (also owned by Facebook) with a 3% time share
- Facebook started the year 2012 with zero mobile revenues and ended it with 23% of its revenues coming from mobile

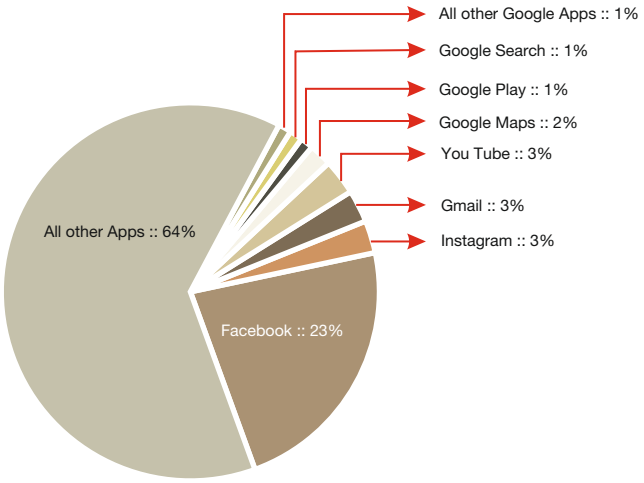
Exhibit 30 Growth in Facebook Monthly Active Users (Mn)



Source: Facebook quarterly reports

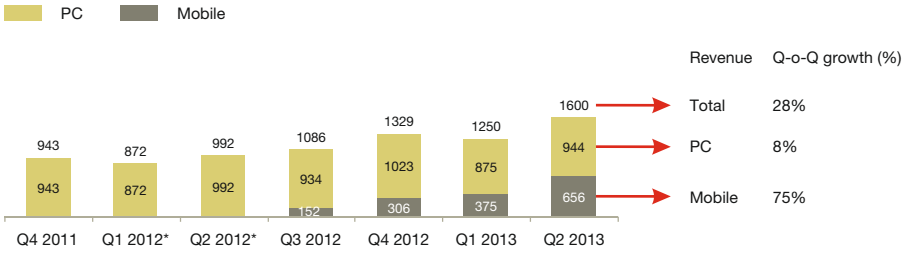
[8] Facebook Q4 2012 Results - Earnings Call Transcript
[9] Instagram was acquired by Facebook for $747 Mn in 2012; as a critical part of its mobile strategy

Exhibit 31 Time share of the top apps in the US (% of total) – December 2012



Source: Comscore mobile metrix

Exhibit 32 Composition of Facebook's advertising revenues ($ Mn)



* Estimates

Source: Facebook quarterly reports

The mobile revenue growth Facebook demonstrated has silenced its naysayers with its stock price crossing its IPO price for the first time since it listed. Mobile monetization was considered a huge challenge and not many expected Facebook to get over that hurdle this quickly.

The transformation wasn't easy

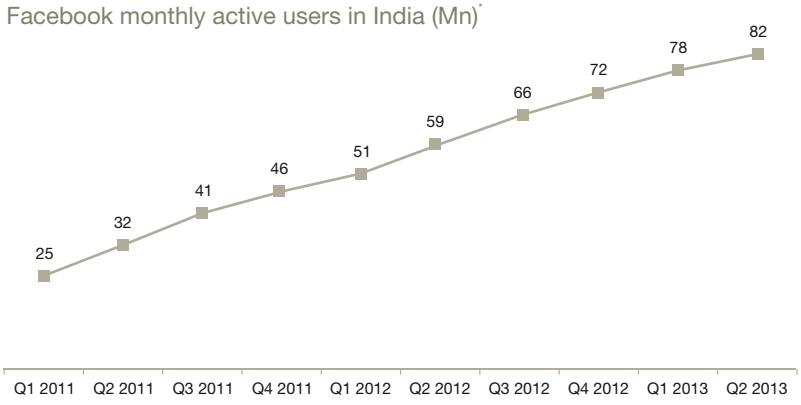
Facebook rewrote its iOS and Android apps during 2012, making them faster and more stable, leading to better engagement among users. They have also started thinking differently about unlocking the potential of mobile advertising. While ads on the PC interface are detached at the side, Facebook took a bold move and integrated its monetization into the main body of user messages/notifications on mobile (as "sponsored stories"). On another count, the company reorganized itself in a manner where advertising moved from being a centralized group, to becoming integrated with respective product groups (which are responsible for product design and monetization).

Sponsored stories have been expanded to the news feed on mobile and a new premium mobile ad service has been launched. Facebook has launched its own app store called 'App Center'. The high-voltage acquisition of Instagram has also helped shore up the mobile user experience. All these activities seem to be bearing fruit as Facebook works its way through the mobile monetization maze.

Facebook too 'likes' India

Facebook counts over one billion people as its users, as against the 1.5 billion PC users in the world. That number gets dwarfed when compared to the 4 to 5 billion mobile phone users in the world. It is no secret that Facebook is eyeing this 4 to 5 billion population as its target market, rather than the 1.5 billion. They have even stated this as the primary reason behind the mobile focus. With the ban on Facebook in China, there are no prizes for guessing where the company expects a majority of these new users to come from. The company has had significant growth in India over the last two years, more than tripling its user base to 82 million by the second quarter of 2013.

Exhibit 33 Facebook monthly active users in India (Mn)[`]



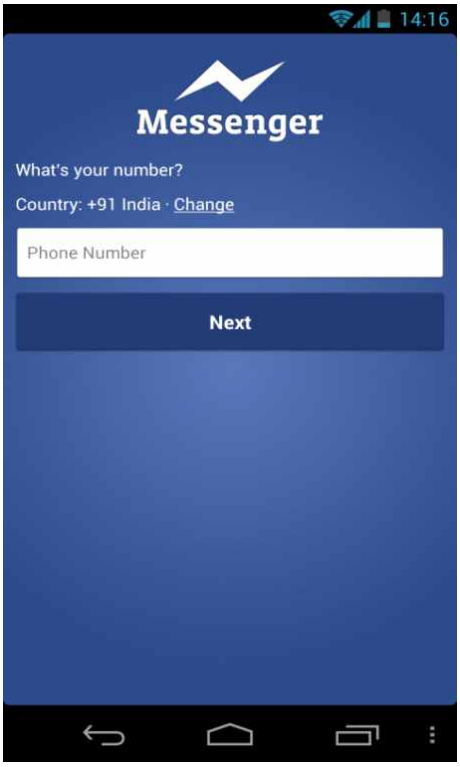
Source: Facebook SEC filings

In order to do this, Facebook has innovated aggressively on their user acquisition efforts which seem to be bearing fruit. In April 2012, Facebook stated that around 30% of its Indian users access it only on a mobile device, and around 30% of new sign-ups were driven through mobile devices. This number is likely to have gone up further since then.

[`] Monthly active user for Q2 2013 imply monthly active users by the end of the quarter

Some of their user acquisition initiatives in India are captured in the exhibit below:

Exhibit 34 Facebook's mobile user acquisition initiatives in India



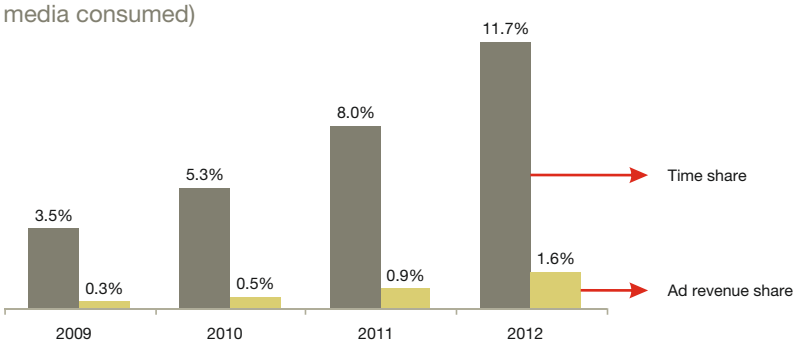
- Free Facebook access through tie-ups with telcos including Airtel, Reliance, Idea and Aircel
- Pre-loading of its mobile app through tie-ups with most OEMs
- Launch of Facebook Messenger, which allows users to sign up with just a phone number
- Operator billing for purchasing Facebook credits, in tie-up with Zong and Boku
- Support for Hindi in its feature phone app, Facebook for Every Phone
- Free talktime of INR 50 for every new registration and every referral on its mobile site

Google and Facebook's success in the Indian mobile Internet market may spell bad news for local players seeking opportunities in mobile search and social networking segments. However, given the mobile Internet adoption they are driving (as compelling use cases), it portends well for the Indian mobile Internet industry at large.

Indian mobile advertising market potential estimated at INR 2,800 Cr by 2016

The share of time and advertising revenue for mobile Internet in the US shows that the difference is still vast, and there is immense potential for growth in mobile advertising revenues in coming years.

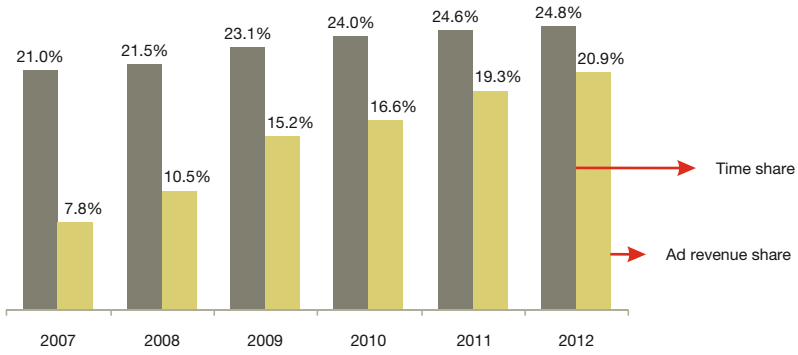
Exhibit 35 Time share vs Ad revenue share for mobile Internet in the US - (% of total media consumed)



Source: IAB, eMarketer

The gap is only widening as time share continues to grow much faster than the ad revenue share. Digital advertising online went through a similar phase before revenues finally began to catch up with time spent online.

Exhibit 36 Time share vs Ad revenue share for PC-Internet in the US (% of total media consumed)



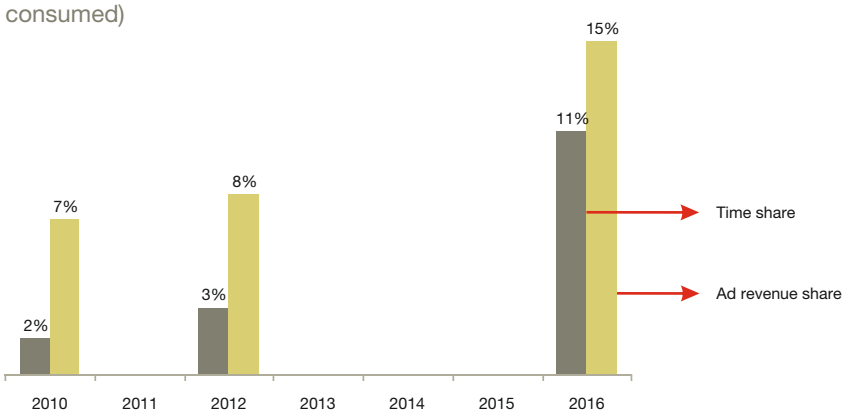
Source: IAB, eMarketer

In India, the time share of mobile Internet is much lower than the global average, largely because the penetration itself is lower than most countries.

Traffic share of mobile in India is estimated to be at around 9% for 2012. Mobile advertising revenues in India were estimated to be around INR 180 Cr in 2012, constituting around 6.6% of the digital advertising market. Given that traffic share of mobile Internet is expected to grow to 28% by 2015, and the digital advertising market itself is growing at a fast pace, the mobile advertising market is poised for some exciting times ahead.

In our last report, we had shown how the digital advertising market in India is different from the digital media markets in other countries, with revenue share for digital medium being much higher than its time share in India. And we had projected that the gap between time share and revenue share would start getting bridged over a period of time. We maintain our view on this score and expect the digital advertising market to reach INR 8,800 Cr in 2016, from INR 2,700 Cr in 2012.

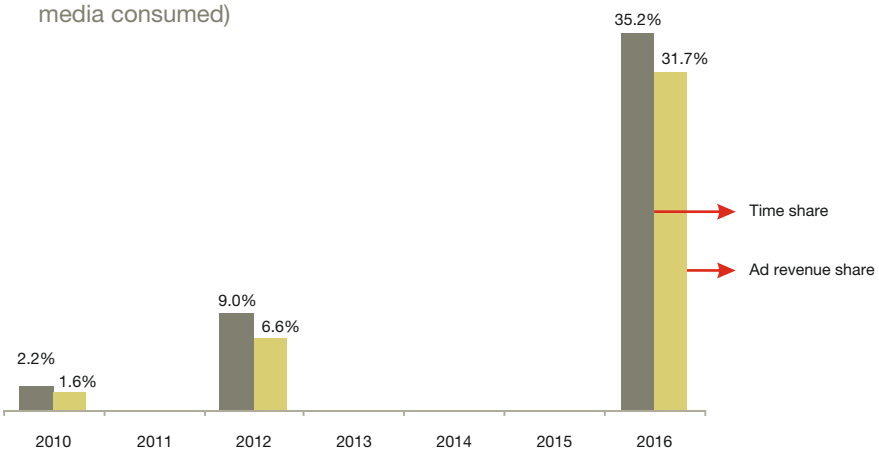
Exhibit 37 Time share vs Ad revenue share for PC-Internet in India (% of total media consumed)



Source: IRS, KPMG-FICCI Frames 2012, Avendus estimates

But within the digital market, the Indian mobile Internet market resembles global markets with lower ad revenue share than time share. This gap too is expected to close out over a period of time, with mobile advertising reaching a potential of INR 2,800 Cr on the back of 35% time share by 2016.

Exhibit 38 Time share vs Ad revenue share for mobile Internet in India (% of total media consumed)



Source: IRS, KPMG-FICCI Frames 2012, Avendus estimates

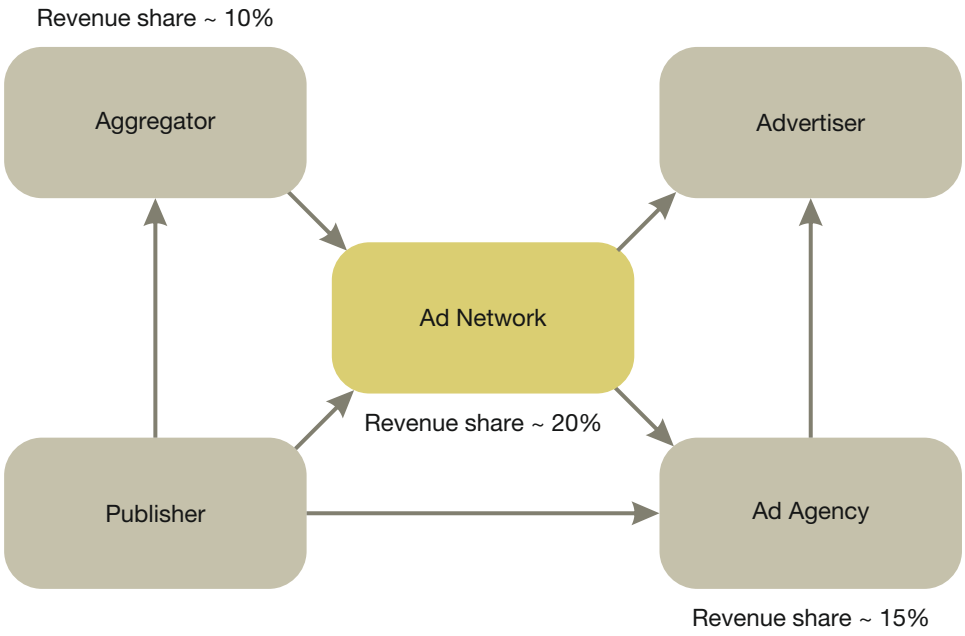
To capture opportunities on offer for mobile advertising, it is essential to ensure that time share, and in turn advertising inventory continues to grow. To add to that, it is essential to ensure that the ecosystem for mobile advertising falls in place – with better targeting capabilities, more engaging ad forms, better post-click management and increased awareness among advertisers.

The role of ad networks is crucial in the mobile world

Search accounted for 46% of digital advertising in the US in 2012. Mobile advertising follows a similar pattern. Google accounted for around 54.5% of the mobile advertising revenues in the US during the same period, with some portion of that coming from Youtube and Adwords. Considering mobile searches account for over 40% of total Google searches in India, it is safe to assume that Search accounts for almost 50% of the mobile advertising revenues in India. The other players are competing for the other half of the market.

eCPM[10] is a key indicator of the effectiveness of an advertising medium. As an illustrative benchmark, eCPM for web advertising in the US is in the range of $3.5 while that for mobile apps is around $0.75. As reach of mobile internet increases, it is also important to increase fill rates as well as eCPMs to realize the full potential of mobile advertising. Advertising networks and agencies are playing a crucial role in enabling this.

Exhibit 39 Mobile advertising landscape – simplified



Aggregators consolidate ad inventory from multiple publishers and offer that to ad networks. They work like Supply Side Platforms (SSPs) in the digital advertising space, but the technological capabilities remain more limited. Ad agencies assist advertisers in arriving at an optimum advertising plan and help execute against it. Ad networks act as intermediaries who enable advertisers and ad agencies to advertise on mobile websites or inside mobile apps, without having to go directly to publishers or aggregators.

[10] eCPM – effective Cost Per Mille – Advertising cost per thousand views

Types of mobile ad networks

Blind Networks

Blind networks provide advertisers with high volumes of advertising inventory from independent publishers (app developers and mobile sites). They typically have a large number of publishers and advertisers using their networks. They also help offload unfilled inventory of premium players. Blind networks allow advertisers to target audiences by geography and by content category, but usually don't allow advertisers to select specific inventory (website/slot or app). They typically get compensated on a performance (CPC , CPM and at times CPA) basis. Some of the leading blind networks include InMobi, Lead Bolt and Madvertise.

InMobi – Backed by Softbank and KPCB, InMobi is the largest independent mobile ad network in the world. InMobi primarily works as a performance based ad Network and passes around 60% of revenues to the publishers. It has a high global reach among brands and agencies. 90% of the ads served through inMobi are on a CPC basis, with CPCs ranging from $0.02 to $1. Click Through Rates range from 0.5% to 2%. Advertisers can target audiences based on device, carrier, content category, demographic, geo-location or time of the day. InMobi offers tools to help advertisers optimize and track campaigns. Publishers are given filtering and control options. InMobi Analytics tracks and reports the success of mobile advertising campaigns in-depth and uses it to improve its ad-serving process in real-time.

Premium Blind Networks

Premium blind networks have a greater proportion of premium publishers with higher traffic and higher recall brands. They are preferred by brand advertisers over blind networks and are generally compensated on a CPM basis. These are mostly blind or semi-blind (Channel targeting). They also sell specific spots on some sites at a premium price. Millennial Media is one of the well known premium blind networks.

Millennial Media – 80% of Millennial Media's revenues come from Neilsen Top 100 mobile sites. The network is used by all major US media conglomerates. Nearly 50% of advertisements placed through Millennial are targeted on the basis of behavior and demographics. CPM costs vary between $2 and $15 – around 50% of this is paid out to the publishers. Millennial optimizes reach and frequency of campaigns through its sophisticated ad-serving technology. It also publishes a monthly scorecard for reach and targeting which is highly regarded within the advertiser community for the insights it provides.

Premium Networks

Premium networks focus on highly popular and expensive inventory from the most prestigious publishers. They sell this inventory to large brand advertisers who are willing to pay premium prices for prime advertising spots. Payments are mostly on a CPM basis which range from $5-$75. Publishers get a higher share of revenues here than they do with blind networks. The key to these networks is the close relationships they maintain with premium publishers, often on an exclusive basis. Premium networks include players such as Mobile Theory, AOL and Microsoft mobile advertising.

Mobile Theory – Started in 2011, Mobile Theory has grown rapidly with a pure focus on premium ads. 80% of its revenues come from the US. 90% of the ads are sold on a CPM basis. CPMs range from $5 - $25. Advertisers spend at a minimum $10,000 per month.

Local mobile ad networks

These networks provide localized targeting solutions to advertisers. Charges are higher as they provide better targeting and conversion rates. The fill rates are correspondingly lower. Charges are usually on a CPC or CPA basis. Prominent players include xAd and YP.

xAd – Backed by SoftBank and Silicon Valley Bank, xAd claims to have the largest inventory of location-verified mobile traffic, with the ability to reach 85 million unique users. The company is focused on the retail segment with several prominent restaurants and automotive dealers on its clients' roster.

Cost-per-action (CPA)/Affiliate networks

These networks allow advertisers to shift the risk of performance to publishers/ networks and be paid for specific actions of customers. Publishers select advertiser campaign location and timings, but advertisers can specify categories where ads can/cannot be put up. Most CPA networks use mobile web more than apps and all advertisements are completely blind. MobPartner is one of the prominent players in this space.

MobPartner – Paris-headquartered company with focus on USA, UK, Thailand and France. Payments are 100% on CPA basis with $1,000 as minimum ad spend. 85% of MobPartner’s inventory comes from the mobile web.

Indian mobile ad networks still at early stages of development

The Indian mobile ad networks space has been bolstered by the presence of two of the largest global players – Google and InMobi. However, the market is still at a nascent stage and comprises primarily of blind and premium blind networks.

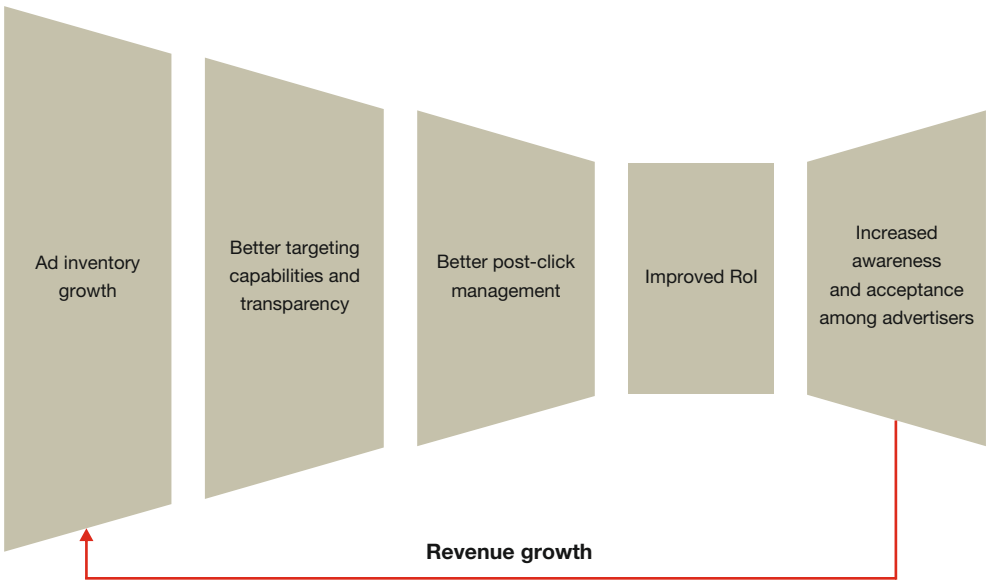
Google, InMobi, Komli and Vserv are amongst the largest mobile ad networks in India and cater to a major portion of the market. While Google and InMobi focus on the global markets and the smartphone population, Vserv's differentiation lies in its ability to serve the feature phone population – which is still sizeable in emerging markets.

Other players in the space include AdIQuity, Networkplay, Buzzcity and Komli. There are also specialized players who have emerged in the market landscape. Vuclip and Vdopia focus on video advertising models. Players like AdNear and Pipal's DelightCircle focus on local advertising opportunities.

Most players today talk of the reach they can provide. But the focus is already shifting towards targeting capabilities and the technological superiority of the platforms they offer.

Post-click management and advertiser acceptance remain concern areas

Exhibit 40 Factors which impact the growth of mobile advertising



Mobile advertising is following a similar evolution path as digital advertising. Inventory has been growing at a very fast pace. It is essential that improvements in other areas keep pace with inventory growth. We look at some of the key factors that impact the growth of the mobile advertising market. (Exhibit)[11]

[11] Form factor is a critical parameter, but has not been included in this analysis as it has been the focus area for long, and is expected to continue to improve with device and technological advancements.

Targeting capabilities are improving

The need for better targeting capabilities cannot be overstated. Advertisers on one hand need to see early results to build conviction in the channel while publishers would like to see better eCPMs. Stating the obvious, networks which deliver the best results for both sides will stand to gain disproportionately. Another factor impacting the market has been the lack of visibility into the campaigns. However, these factors are beginning to get addressed.

In June 2012, Google combined its Admob inventory, which comprised over 300,000 mobile apps, with Adwords. Now Adwords allows advertisers to run mobile campaigns, including those on mobile apps, using the same interface. Initially, targeting was restricted to choice of telecom carriers and operating systems. Now, Google has begun offering targeting capabilities based on the device, app category and even individual apps. In Jan 2013, InMobi acquired Overlay Media, a data analytics start-up which specializes in context-aware technologies to improve the targeting and personalization of its mobile ads.

While contextual information is getting built-up, the information needed to execute models such as behavioral retargeting still remains weak. Limitations on cookies on mobile devices and the usage of apps are some of the reasons for this. Mobile data analytics is in nascent stages, but is rightfully beginning to attract a lot of attention.

Vserv's launch of AudiencePro through a tie-up with Airtel in January 2013 adds another angle to targeting. In addition to the standard targeting capabilities, this offering enables advertisers to target consumers based on their demographics, spending power, network usage, location and content relevance. This improves the richness of the data manifold and can have a significant impact on the effectiveness of the ads.

The Indian market is also seeing early signs of location-based advertising. Komli has struck a deal with Yoose, a hyper-local mobile ad network to offer location-based ads using geotargeting. Komli's move is significant as it has exclusive tie-ups with major social networks Twitter and Zynga for their ad inventory in India. This allows Komli the ability to offer SoLoMo solutions to its customers.

These are still early days for location-based advertising in India as user adoption is yet to pick up. Having said that, location-based targeting capabilities can be expected to become one of the key drivers of mobile advertising going forward.

Post-click management needs more attention

The variety of post-click options which mobile offers - click to call, buy, locate, download, play video, etc, makes for very effective marketing. However, the scarcity of mobile optimized websites remains a limitation, and post-click management remains a weak area overall.

Google has extended its GoMo[12] initiative to India to build awareness among advertisers and assist them in building mobile properties, as discussed earlier. One97, in keeping with

[11] GoMo – Google's initiative which was launched globally in Nov 2011 (and later in India), which aims to build awareness among the advertising ecosystem – publishers, advertisers and ad agencies – about the power of mobile, and to provide assistance to publishers to go mobile

its ambition of becoming India's largest mobile Internet company, is also evangelizing this area – it acquired Mobivite, a platform which allows advertisers to build mobile websites and run mobile advertising campaigns. There are now multiple players who offer mobile optimization solutions for web properties.

Advertiser awareness and acceptance are still concern areas

A key limitation for mobile advertising in India is the lack of awareness among advertisers. Mobile advertising is primarily being driven by mobile-focused content businesses, and PC-Internet players who are extending to mobile. Even amongst PC-Internet players, the list of those who are focusing on mobile remains a small proportion of the total. Amongst traditional advertisers, mobile advertising budgets are at best seen as an extension of their digital advertising budgets. A look at the key advertisers on mobile from the Millennial Media yearly review report shows that retail and restaurants, entertainment, telecom, finance, automotive and FMCG form the global top six in 2012. But, almost all these verticals are at best just experimenting with mobile advertising at this stage.

Advertisers and even publishers lack clarity on how to approach mobile Internet and mobile advertising, which impacts the adoption of the medium significantly. There is confusion around what types of mobile properties one should build (mobile app or a mobile website). There is also confusion on what to expect out of mobile advertising, leading to a force fitting of performance criteria.
There is a clear need to improve awareness about mobile advertising and its benefits among the advertiser community. The emergence of mobile specific ad networks has helped in this regard. But, there is still a much work to be done.

Entertainment and social media garner a large portion of time share on mobile apps

The time share of different categories in the overall mobile time spent gives a peek into the potential for mobile advertising revenues across different categories. We take a look at the time share of different categories among apps and mobile websites.

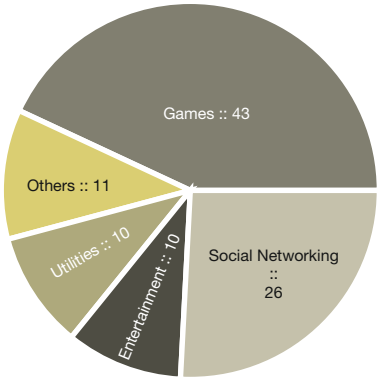
Apps – Games and Social networks share the spoils

Advertisers – getting more social and casual

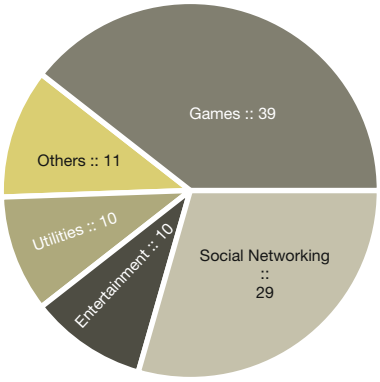
Among the apps, the top apps by time share indicate that games and social networks dominate the market both globally and in the US. The trend is the same in India though time spent on social network apps significantly outweighs time spent on gaming apps. Extending the correlation drawn before, mobile advertising opportunity can be expected to be the largest for gaming and social network apps.

Exhibit 41 Time share between app categories (%)

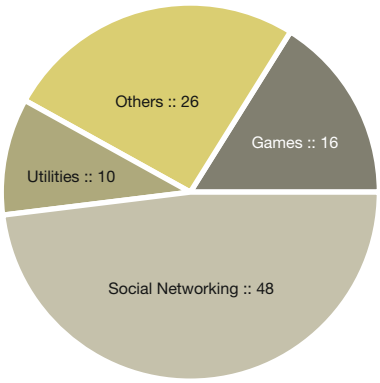
Timeshare between app categories, Nov, 2012 (%) - Global



Timeshare between app categories, Apr, 2013 (%) - US



Timeshare between app categories, Apr, 2013 (%) - India



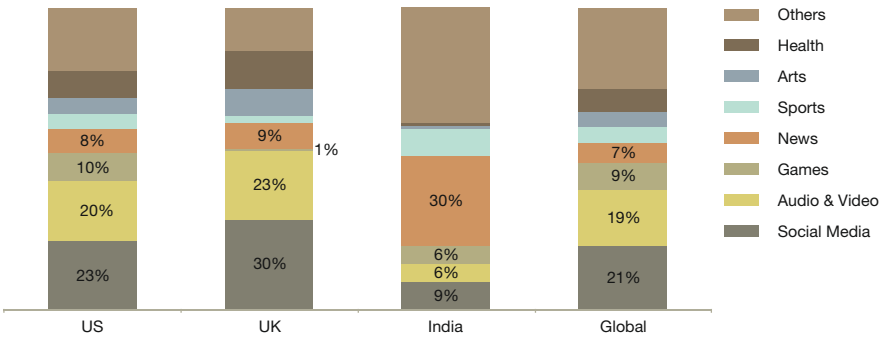
Source: US & Global Graph: Flurry Analytics, Comscore Digital Omnivores
India Graph: Nielsen Informate Mobile Insights Apr-2013

NOTE: Entertainment category hasn't been considered for the above India graph. The data for India chart were taken from Nielson Informate Insights. Informate has a passive measurement panel of 8500+ Smartphones and 400 tablets in India which it has been maintaining for over 3 years. In India Informate has a marketing alliance with Nielsen. Informate's proprietary meter, installed on devices of the panel member is able to collect details of both online and offline activities that are carried out on SmartPhones and tablets. This information is collected, logged and sent to servers at periodic intervals which is then aggregated and processed to provide for various analyses.

Entertainment dominates the mobile web

In the US and UK, social media, music and videos dominate the time share of mobile websites. India looks very different from the global markets, with social networks accounting for less than 10% of the traffic to mobile websites, partly explained by the higher prevalence of social network apps. The high time share for news is an indicator of mobile Internet holds for news aggregators, online portals and the print media.

Exhibit 42 Share of mobile web impressions by category (%)



Source: State of Mobile Advertising - Opera, Nielsen Informate

Music and videos become even more important because of the vernacular nature of the content. The fact that video ads are much more engaging also leads to higher eCPMs for the same, leading to a much larger share of advertising revenues.

Off-Deck Paid Content takes off in India

Despite the menace of piracy, paid content markets have existed for long in most developed countries. Two types of digital paid content plays have been very successful – (a) PC-Internet based digital content streaming and downloads (music, news, videos, etc) and (b) mobile based value added services provided by telecom operators (Messaging, Music, Videos, Games, Apps, etc).

A global shift of paid content from PC-Internet to mobile Internet, but nothing to shift in India

The digital content downloads / streaming market has accelerated in the last few years with device improvements (iPhone, Kindle, etc to name a few) and better connectivity. Some of the newer companies in this segment include Netflix, Spotify and Zynga. Most other large players are traditional companies belonging to one of the following major categories – games (Activision Blizzard and Electronic Arts), music and videos (Apple, Sony, Comcast, Time Warner, Universal Music Group, CBS, Walt Disney and Viacom), news and e-books (Amazon and News Corp).

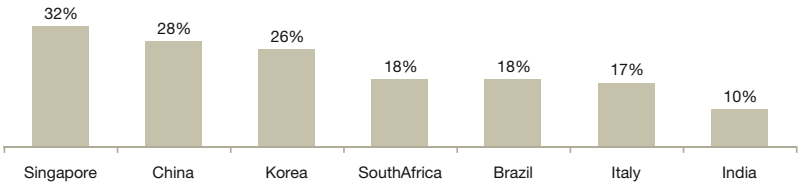
While most of these categories have had their origins on PC-Internet, there is an unmistakable shift globally towards digital content consumption on mobile devices. News and e-books have started depending on tablets for survival. Spotify depends on mobile subscription fees to increase its total revenues, and 100 million of the 150 million Pandora subscribers access the service through mobile devices. Games have started growing on mobile through app stores (unlike other industries, mobile games tend to complement PC games, by bringing in newer customers rather than converting the existing PC gamers). A good portion of video traffic has also moved towards mobile, leading to new mobile-based video streaming models.

The problem for Indian companies working on mobile paid content though is that almost none of these models have existed in India in the PC-Internet domain. The reasons are many – widespread piracy, lack of good quality legitimate content, payment problems, and connectivity issues among others. There is unfortunately no ‘paid content’ market to be shifted from PCs to mobile devices.

The shift from MVAS to off-deck content

Mobile value added services (MVAS) provided by telecom operators has been the only paid content model that has been successful. This success has been largely driven by the control telecom operators have had on the device and their ability to minimize piracy. In emerging countries, the MVAS market size ranges from 10-30% of the overall telecom revenues whereas it trends closer to 50% for developed markets like Japan and US.

Exhibit 43 Revenue share of Mobile value added services – 2012 (% of Mobile service market-2012)

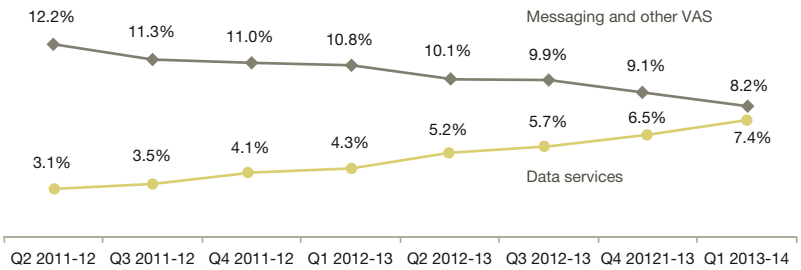


Source: Global Mobile VAS Market Report by Technavio

Three types of services are usually clubbed under MVAS – (a) Messaging services like SMS, MMS, etc. (b) Data plans and (c) Mobile content and apps such as Caller Ring Back Tones (CRBT), games, music, videos, etc. With increase in mobile Internet adoption, two of these MVAS segments have been coming under pressure from new businesses across the globe. Players like Whatsapp and other mobile messengers are challenging messaging services of telcos by providing a better feature set (driving stronger social connectivity) and lower prices[13]. Over-The-Top (OTT) content models – where content providers reach consumers directly and telcos merely provide data connectivity – have started eroding revenues of telcos from mobile content services like music and mobile TV.

The Indian MVAS market size was estimated to be around INR 26,000 crore in 2012. MVAS revenues of most Indian telecom players is around 15% currently, split almost equally between messaging services, data services and mobile content. Messaging and mobile content are coming under pressure in India as well – a quick look at the share of revenue of these categories over the last few quarters for Airtel, India's largest telecom operator, illustrates this trend clearly.

Exhibit 44 Share of non-voice revenues for Airtel (% of total revenues)



Source: Company annual reports

Airtel's total data served on the mobile network grew by almost 14% from 23,937 million MBs in March 2013 to 27,271 million MBs in June 2013 in India

Even though their MVAS revenues are under threat from off-deck content, Indian telcos may be better off playing a role in supporting this phenomenon (and getting a share of revenues earned through this channel) by facilitating payments for these transactions. Some of the telcos seem to have accepted this reality and are now offering payment services for off-deck content at significantly lower revenue shares in their own favour.

[13] Whatsapp has over 250 million users, Tencent's WeChat doubled its user-base to 200 million from March to September 2012, Line has over a 100 million users and Kakaotalk has over 70 million users

Content developers accessing customers and getting paid through Vodafone share 30% of their revenues earned through this channel with Vodafone – this is the same as what they would pay 3rd party app stores like iOS App Store and Google Play. Vodafone has indicated that revenues from this newly launched service were matching up to those from their more established on-deck business within four months of launch.

Indian App market – a long way to go, but larger than expected!

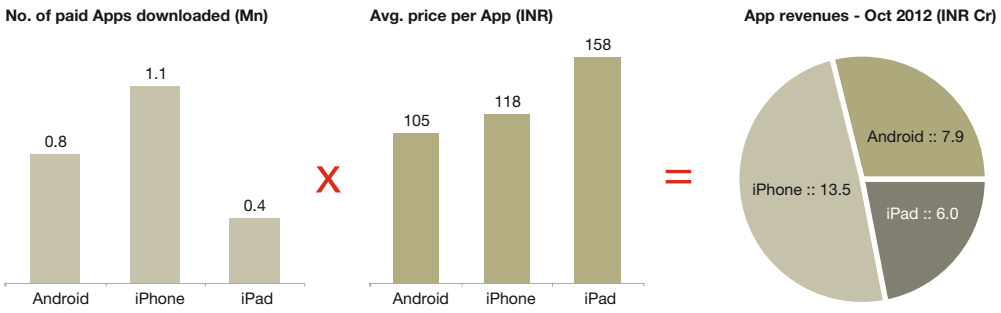
Paid apps are driven by two types of revenue streams – (a) paid-only model, where the customer pays to download the app from the app store, and (b) "Freemium" model, where the customer downloads an ad-supported free app with limited features with the ability to upgrade to the full functionality ad-free app through paid upgrades or in-app purchases.

We have attempted to estimate the size of the paid app market in India in 2012. Consider the following metrics:

- Unlike the US, Apple is a very small player in the Indian smartphone market and Android is estimated to enjoy more than a 90% share of that market
- The number of apps downloaded from Google Play in India reached 150 million downloads in October 2012 – India ranks fourth in the world accounting for 6% of the total downloads from Google Play
- The number of downloads from the Apple App Store in India was 12 million in October 2012, accounting for around 1% of the global downloads
- The proportion of paid app downloads in India has been similar to that of global benchmarks, with 9.6% of Apple App store downloads and 0.5% of Android downloads being paid for
- The average price for a paid app was over INR 100 across devices

The above numbers indicate that total monthly revenues earned by Google Play and Apple App store from Indian customers was INR 27.5 Cr in the month of October 2012, or an annualized run-rate of INR 330 crore. Based on this, the market size for 2012 can be estimated to have been somewhere between INR 150-200 crore.

Exhibit 45 App revenues of Apple App Store and Google Play in India – Oct 2012



Source: XYO Logic, Avendus estimates

This number does not include in-app purchases made on the apps purchased from either of these stores. There were around 7 million in-app purchase-capable apps purchased from the Apple App store, much higher than the number of paid-apps purchased. In-app purchases are yet to catch up in India, but hold tremendous potential.

This number also excludes the apps purchased from the Nokia store, still the largest player in India based on handset OEM market share. Nokia has operator tie-ups across 52 countries covering 145 operators. It carries more than 120,000 apps and has over 120 million registered users. Though specific numbers are unavailable, India remains a significant market for Nokia. In fact, UTV Indiagames is among the top three developers for Nokia, and has passed the 100 million cumulative downloads mark in 2012.

Finally, the number excludes the app revenues generated through the app stores of telecom operators (on-deck). Airtel had around 3.6 million paid app downloads in 2012, at an estimated median price of INR 50. This indicates the revenues realized by the telecom operators through their app stores could range from INR 80-100 Cr for 2012.

Based on the above figures, we estimate that the overall app market for 2012 is likely to have ranged between INR 300-500 crore. This may seem small in isolation but is significantly higher than what any digital content market has ever achieved in India. To put things in perspective, the entire Indian music industry size is estimated to have been around INR 900 crore in 2011[14].

Indian app market to grow 5x to INR 2,000 crore by 2016

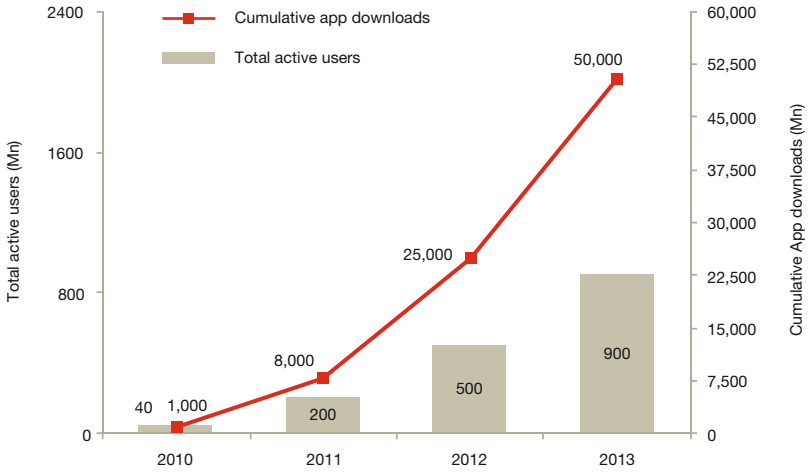
We have tried to estimate the potential for Indian paid apps market in 2016 using two methods – (a) by estimating the potential revenues of the different application stores in 2016 based on how they have performed globally and in India till date, and (b) by drawing parallels between the evolution of customer spend (ARPU) patterns on mobile telecom in India and the expected evolution of customer spends on digital content on mobile Internet in India.

Google Play and Apple App store expected to cross INR 800 crore each by 2016

Android has been leading the growth of smartphones in India, a trend which is expected to continue. Let's take a look at how Google Play has evolved over the years globally, to understand its potential in the Indian apps market.

[14] Of which digital accounts for INR 520 Crore and physical music products add up to INR 380 Crore

Exhibit 46 Global Google Play growth



Source: Literature review

Global estimates suggest that number of downloads per active device is hovering around 35, much higher than the numbers (early 20s) seen in 2010. The proportion of paid downloads is around 0.5% of the total apps downloaded in Google Play.

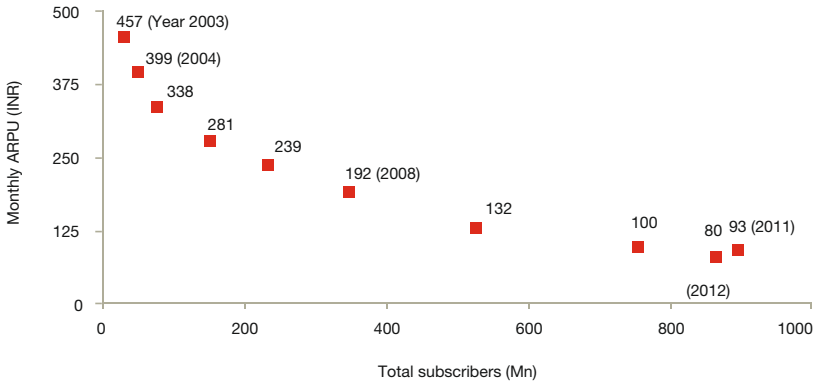
Based on the mobile Internet users estimates for India, the number of active users on Android is expected to reach around 240 million by 2016 (90% of the total 3G user base). The number of apps downloaded per user in India is around 35, close to the global average. This number is expected to remain the same with lower usage by new users getting offset by accelerating usage of the early adopters. Increased availability of free and relevant apps will be critical for this number being maintained at the current level. A per user average of 35 would imply around 8.4 billion apps being downloaded in India by 2016. Globally the paid app downloads from Google Play have been rising and the difference with Apple is beginning to reduce. At 35 apps per person, 2% of total downloads being paid, and a price of INR 52.5 per paid app (half the current value), the Google Play paid apps market in India could be worth INR 880 Cr by 2016.

iPhones and iPads have been showing significant momentum over the last few months on the paid app downloads front in India, with 1.42 million and 0.38 million paid apps downloaded respectively in June 2013. With the increasing number of Apple devices, a higher percentage of paid apps, and higher prices, Apple is expected to have a significant impact on the paid apps market in India. We believe Apple is likely to match up to Google Play revenues by 2016.

Combining revenues from Google Play and iOS app store with those from other avenues including Nokia's app store, on-deck content sales of telcos, etc., paid apps is likely to be a INR 2,000 crore market by 2016.

Another way to look at the potential for paid apps would be to estimate the payment potential among new users coming onboard – and how ARPU is expected to evolve as the market expands. We draw a parallel to how mobile monthly ARPU evolved during the last decade.

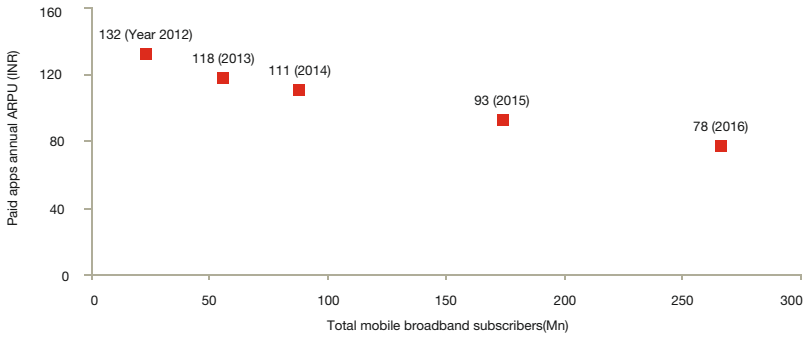
Exhibit 47 Evolution of mobile telecom monthly ARPU with subscriber growth



Source: TRAI Quarterly performance indicator reports

We have equated the current 3G penetration (28 million subscribers or 22 million active users as of March, 2013) and the estimated annual ARPU on paid apps (INR 132) to that of mobile telecom penetration and monthly ARPU in 2003. We have projected the evolution of paid apps annual ARPU based on this analogy in conjunction with the estimated growth of mobile broadband users.

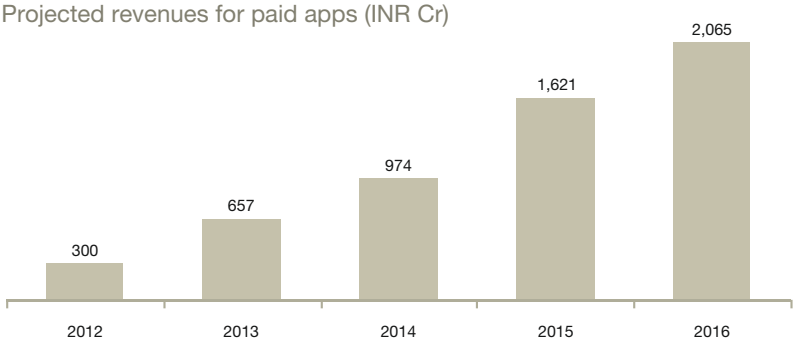
Exhibit 48 Projected evolution of paid apps annual ARPU



Source: Avendus analysis

The ARPU on paid apps is expected to go down to INR 78, as the number of subscribers grows to 266 million in 2016. This also indicates that the revenues could be in the range of INR 2,000 Cr to INR 2,200 Cr by 2016.

Exhibit 49 Projected revenues for paid apps (INR Cr)



Source: Avendus analysis

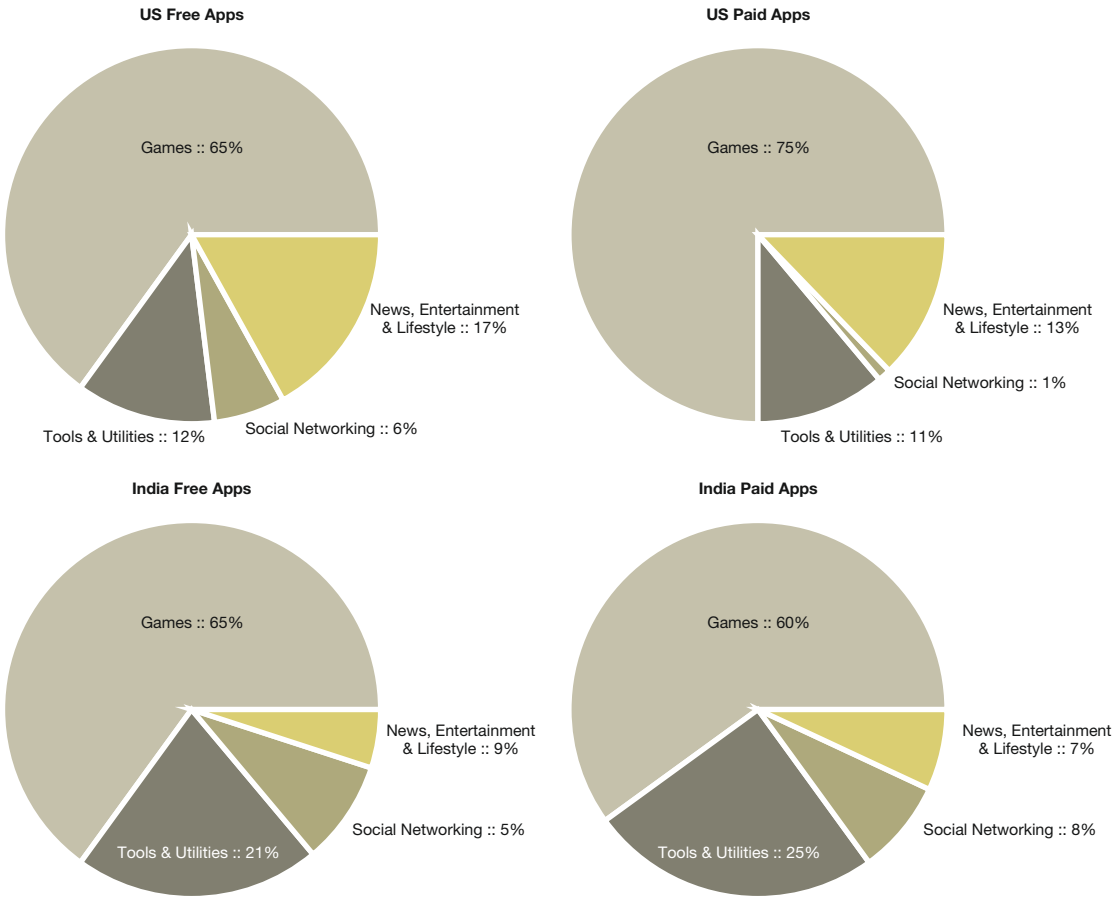
There could be an upside to this analysis based on the fact that monthly ARPU of INR 457 considered for telecom subscribers in 2003 was the peak achieved for mobile subscribers. The current annual ARPU for paid apps at INR 132 may not be the peak annual ARPU considering that the ecosystem is still evolving (devices, connectivity, payments) and there is limited availability of locally relevant paid apps in India today. The way the apps market has grown globally indicates that the pace of adoption increases rapidly after the initial years, especially with increasing penetration of smartphones. Globally, the adoption of tablets has also had a significant impact on the paid apps market. In India, tablet adoption is still low and the impact on paid apps is not material as yet. Considering these factors, we believe our estimate for the paid app market has several potential upsides that could deliver positive surprises.

Apps present the opportunity to create the largest ever paid content market in India. It is for players in the ecosystem to embrace this opportunity and ensure it attains its real potential.

Games expected to be the big beneficiary of this growth

Games remains the largest category among free and paid app downloads across markets. India is not an exception to this trend.

Exhibit 50 Split of App downloads by category, June 2013 (% of total downloads – iPhone & iPad apps)



Source: XYO Logic

In India too, the distribution of apps, in the data set considered (of iPhone & iPad apps) remains in favour of games.

Market dominated by global content; but regional opportunities are showing up

The real challenge for Indian content players becomes evident when one looks at who today is taking the money home from paid apps. In the on-deck market and in the Nokia store, both of which are defined by feature phone presence and operator billing, Indian players seem to have a stronghold. They have tie-ups with most telcos giving them a strong presence in the local market. Global players also work through tie-ups with Indian content players rather than the telcos (also because current market size does not warrant their direct presence).

The share of feature phones shipments at 88% of total indicates an opportunity for feature phone focused models in India. However, considering that more than 50% of the traffic and revenues come from smart phone users, there is no guessing about where this market is headed. The best way to reach smartphones is through Google and Apple's app stores where the market as well as the competition is global in nature. Not many Indian players have made a mark there as yet.

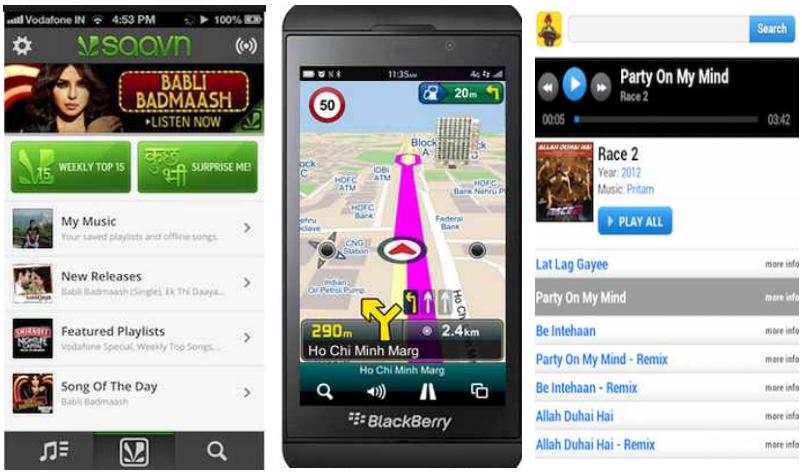
Exhibit 51 Top paid app publishers for iPhones in India – July, 2013

Company	Top App	Key Market
WhatsApp Inc.	WhatsApp Messenger	US
Halfbrick Studios	Fruit Ninja	US
Gameloft	Asphalt 7: Heat	China
Electronic Arts	FIFA 13 by EA SPORTS	US
Disney	Temple Run: Oz	US
Miniclip.com	8 Ball Pool	-
PunchBox	Contra: Evolution	-
Studios Disney	Temple Run: Brave	US
Appsneon	Tube Downloader Pro	-
Marvel Entertainment	THOR: Son of Asgard	-

Source: XYO Logic

The belief is that the need for local content would lead to increasing opportunities for Indian players. A look at the apps which have worked well in India (but not globally) shows that the current opportunities are in Music and navigation related apps. Also, most of these apps are free, rather than paid. This indicates that the market is still at an early stage of evolution. (Exhibit)

Exhibit 52 Apps with the highest difference between global and Indian ranks for iPhones – June, 2013



App Name	India Rank	Global Rank	Monetization Type	Category	Publisher Name
MapMyIndia	95	6058	Paid	Navigation	Sygic a. s.
ICC Champions Trophy 2013 3D	85	5604	Paid + In-App Purchase	Sports	Reliance Big Entertainment
Lung Function Test	26	3829	Paid	Health & Fitness	Audrian Dcosta
Zomato	42	3493	Free	Food & Drink	Zomato Media Pvt. Ltd.
PayTM	29	2717	Free	Utilities	Paytm Mobile Solutions
Dhingana App	22	2236	Free	Music	Dhingana, Inc.
Saavn	42	1998	Free + In-App Purchase	Music	SaavnTeam
SamCard Business Card reader	93	1717	Paid	Business	Sam Team

Source: Prioridata (Xyologic)

As the next 100 million Internet users come onboard, local content requirements will continue to increase. This will provide opportunities for Indian players. Local content could mean vernacular interfaces, content specific to a locality – say a game based on a Bollywood movie, or even contests attached with a game which engage local customers better.

Mobile Payments Continue to Develop but “Killer App” remains Elusive

High on promise, low on delivery

Mobile payments have been amongst the most talked about topics in recent past and this space continues to generate significant interest in the mobile eco-system. Having said that, it is yet to deliver any meaningful success. IMPS (explained later) arrived on the scene with much fanfare but is yet to make a meaningful impact. The number of mobile wallets, m-payment pilots and m-POS (Square equivalent) start-ups that have mushroomed over the past 12 months is indicative of the promise the industry holds. However, it also indicates the low entry barriers, un-differentiated technology and lack of a sound customer value-proposition that such options offer today.

With over 850 million mobile connections in the country, the mobile payment opportunity presents a strong case. But one needs to reconcile to the fact that constraints of low adoption of digital payments exists amongst mobile users just as it does for Internet users. Unique credit card users are still around 7 million (~19 million credit cards in circulation) and while there are 320 million debit cards, the penetration amongst mobile subscribers is low relative to the intersection of Internet users and credit / debit card holders. The potential is therefore in converting cash transactions to digital payments using a mobile device. This has been challenging even in e-commerce and poses a greater challenge for mobile. Today, nearly 7 million transactions are done every month through mobile wallets and while this volume is growing every month, it does not add up to meaningful value given an average spend of around INR 260

Most mobile payment initiatives have either tried to replicate global success stories or simply translate Internet based payments to a mobile form. In most cases, mobile payment offerings just end up creating a ‘mobile alias’ to any other digital or physical payment option. A key aspect the industry may be overlooking is understanding consumer behavior and creating mobile solutions customized around that. Paying through any mean other than cash is a pain for a customer to start with, and if we add additional layers, whether in terms of authentication, procedural, transaction based or cash-load, it is not likely to see large scale adoption very quickly.

The industry is still waiting for that “killer app” that could accelerate the adoption, somewhat like what IRCTC did for online payments in e-commerce.

Good news – regulators have been pro-active in trying to grow mobile payments

RBI has been very active in promoting the use of prepaid-instruments in the country to curb the prevalent cash economy. At the same time, the primary body has had to balance their desire to grow digital payments with the responsibility of controlling fraud in the system and ensuring such payment modes don't fuel the growth of illegal transactions. Over the past 12 months, RBI has increased the services for which payments can be made without any additional KYC and has also increased the limit of such pre-paid instruments. In parallel, RBI and NPCI have aggressively pushed for mobile banking through Interbank Mobile Payment Service (IMPS). This is a clear indication that the regulator is in favour of mobile payments being bank-led rather than mobile operator led. The key objectives behind this is to avoid the development of large proprietary networks and also ensure consumers are able to access a wider array of banking services to drive the financial inclusion agenda.

One of the most successful mobile payments models globally has been mPESA in Kenya which has become a dominant channel for digital payments. Though telcos have tried to replicate this in India, they have not had much success because RBI doesn't permit the use of talk-time balances of mobile subscribers for purchase of services other than those which are consumed on the mobile phones (digital content like CRBT, games, etc). The regulator's intention is clearly to guard against a parallel cash economy that could be created virtually with talk-time being used as a currency (absence of this restriction was a key reason for the rapid adoption mPesa achieved in Kenya). Recent notifications have increased limits of semi-closed prepaid instruments with low and high KYC requirements to INR 10,000 and INR 50,000 respectively. A full KYC semi-closed prepaid instrument can be re-loadable in nature as well and could potentially open up the scope of the use of talk-time towards non-VAS transactions. This could potentially revolutionize mobile payments if telcos introduce the right payment models.

Exhibit 53 Approaches to mobile payments – a mixed bag with no clear "best suited model"

Approach / Instrument	Players in India	Cost structure	Regulatory impact	Our view
Conventional Payments (Credit Card, Debit Card, Net banking) using a Mobile Payment Gateway	VISA MasterCard AMEX	0.7% - 2.5%	Low	• Similar challenges as online (low penetration, low usage) • Low on convenience
IMPS	54 Nationalized, Private Sector & Co-operative Banks	INR 0.1 per transaction	Low	• Low merchant adoption • Long-drawn sign-up and transaction process
App based Wallets – Card linked (single / multiple merchants)	Citrus, mPayments, zaakpay, flipkart.com, Expressway	0.7% - 2.5%	Medium	• Restricted by the number of card users • Trust issues • Limited by number of merchant tie-ups for wallets
Wallets – Semi Closed / (Cash based & Bank Linked)	18+ players with PPI Licenses airtel money, Money in Mobile	0.7% - 2.5% Convenience fee to users	High	• Have not been able to scale • Cash top-up is an issue • Right customer value proposition is still lacking
Indirect Operator billing	ZONG mobile payments, boku Pay by Mobile	20 - 30% Fee to users	High	• Current fee structure unfeasible for non-digital goods • Low merchant adoption amongst digital goods
Direct operator billing	airtel, vodafone	30 - 70% Fee to users	High / Restricted	• Current fee structure unfeasible for non digital goods • Could be a game changer if regulations change

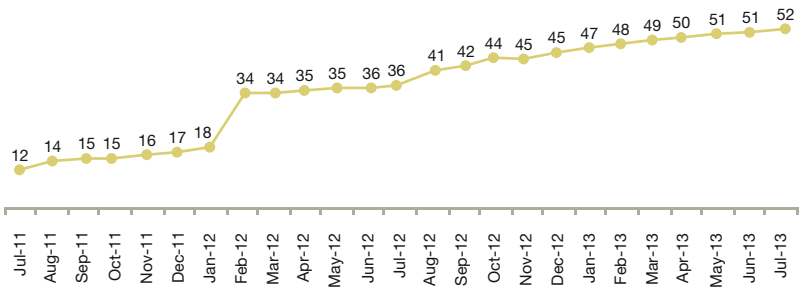
Conventional payment modes are the most prevalent on mobile despite challenges

Card payments and net banking are not the most convenient in the mobile interface, both in terms of inputting card details as well as other requirements like generation of one-time password (OTP). Though latest smartphones help address both these issues to some extent, the overall experience is still not very convenient. Besides form-factor, low reliability of mobile Internet connections compared to PC-Internet connections also tends to lead to increased transaction failure rates. Globally, wherever these challenges are getting addressed (such as the US, Japan and China), m-commerce is beginning to show tremendous traction. The Indian m-commerce market is small today. Players who are seeing m-commerce traction (such as BookMyShow and Cleartrip) have to contend with payments being made using cards. Despite card payments through mobile being inconvenient, more than 25% of BookMyShow's transactions are happening through mobile devices. We believe the potential of m-commerce in India could be completely unshackled with the development of more convenient mobile payment options.

RBI and NPCI have taken an aggressive approach to build a bank-led mobile payment platform; adoption has been good but usage has been low

As mentioned above, RBI has been trying to provide an impetus to mobile payments through the National Payments Council of India (NPCI). NPCI has developed the Interbank Mobile Payment Service (IMPS) which as defined by NPCI, offers an instant, 24X7, interbank electronic fund transfer service through mobile phones. IMPS enables customers to use mobile instruments as a channel for accessing their bank accounts and make interbank fund transfers in a secure manner with immediate confirmation features.

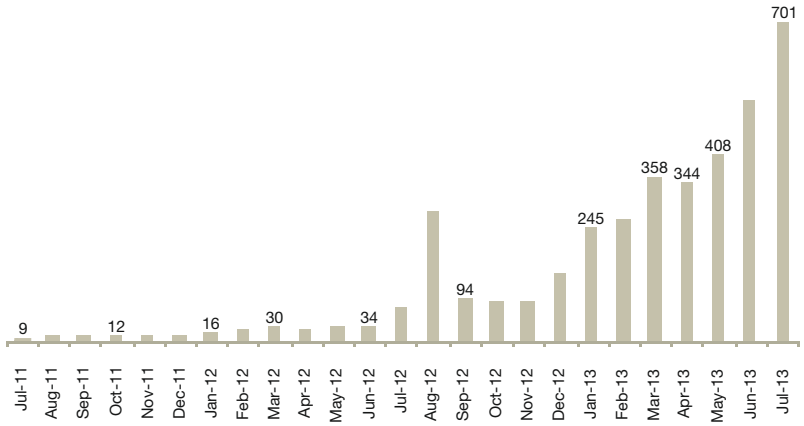
Exhibit 54 Number of Mobile Money IDs in use (Mn)



Source: NPCI

Presently over 59 Banks support IMPS based mobile banking. These banks have issued over 45 million mobile money IDS (MMIDs), which are unique user IDs for IMPS based mobile banking. This which equates to around 15% coverage of banking customers. ICICI (18.09 million), Axis bank (8.58 million) and SBI (6.37 million) have issued the maximum number of MMIDs. The adoption seems significant considering that the service was launched in end 2010, and it has taken only 2 years to reach this penetration level. However, the dampener lies in usage levels of the service. Transaction numbers were hovering around 0.7 million transactions amounting to INR 408 crore in July, 2013. Contrast that with 18 million credit cards through which payments worth INR 8,000 crore are processed every month.

Exhibit 55 Number of transactions on IMPS (in'000)



Source: NPCI

Card-linked mobile wallets have been successful globally; but they face an up-hill task in India due to low card penetration

Card-linked mobile wallets typically work as apps downloaded on a smartphone. The user stores information about their credit/debit cards on the app, and can use the app for making payments without using the physical card, both online and offline. The security PIN for the app remains the primary security mechanism for transactions. Capability to store information about loyalty cards and gift cards adds to the benefits, creating a truly card-free environment.

Globally, Google was an early mover in the mobile wallet segment, with separate solutions for the online (Google Checkout) and offline (Google Wallet) transactions. In early 2012, there were rumours about Google Wallet being launched in India. But, nothing has materialized since then. In the global context, mobile wallet players have focused on both the online and offline world together, creating a payment solution which can replace a card altogether. Creating vendor-neutral mobile wallets requires the service to be widely accepted at online and offline merchants. There have been several initiatives in the past

where companies like mChek, Paymate, Atom, ngpay, Nokia Money and several others have tried to enable mobile wallets but have failed to build scalable businesses around this. Most of these companies either don't survive today or have significantly changed their business model. A more recent entrant, Paytm offers a wallet facility called Paytm Cash. Their customers load the wallet using credit/ debit cards or net banking, and use the balance for carrying out transactions on Paytm. Paytm claims to have 2 million customers for its wallet, and over 60% of those use the wallet functionality every month.

E-commerce merchants have been active in launching their own wallets. Flipkart took the lead, primarily to facilitate payments for its digital store, Flyte. BookMyShow, Cleartrip, Infibeam and others have introduced their respective wallets with some extending the offering to their mobile apps as well.

Cash-based mobile wallets have failed to realize their potential despite several initiatives

Cash-based mobile wallets are a need of emerging economies, where card penetration tends to be low. They are similar to prepaid cash cards. The customer opens an account with the service provider and deposits money into the account either by visiting a physical outlet or through an online transaction. Then, the account can be used to do transactions at both online and offline merchants linked to the service.

m-Pesa is the most successful cash based mobile wallet in the world, and it fulfills the need for banking services among the unbanked masses in Kenya. M-Pesa is an open loop wallet which allows deposits as well as withdrawals of cash, with support for transactions at merchant outlets. With 700 active mobile users in India (compared to 300 million banking customers), cash-based mobile wallets could have a significant potential in India. Several players have tried to exploit this potential. However, most initiatives have been stymied by RBI's restriction of not allowing cash withdrawals outside the banking system.

Airtel has launched its mobile wallet (Airtel Money) across 403 cities in India. There are over 7000 merchants who support transactions using Airtel Money. Airtel Money standalone accounts are semi-open loop accounts and do not allow cash withdrawals. Airtel has joined hands with Axis bank to offer a no-frills banking account on Airtel Money, where cash withdrawal is allowed. Vodafone and ICICI Bank have rolled out M-Pesa, bringing the mobile money transfer and payment service to India. Within India, the service has been initially rolled out in Bihar, Kolkata, and West Bengal, through more than 8,300 authorized agents and will soon be rolled out nationwide. SBI has launched its own mobile wallet Mobicash Easy in Delhi and Mumbai, with plans for a national roll out. Some of the other non-bank and non-telco players that have launched mobile wallets include My Mobile Payments, Oxigen, Beam, Zipcash, etc.

Most offerings in this segment focus primarily on remittances, as that is a key banking need which remains underserved. The secondary focus of these offerings is utility payments and ticketing. Despite clear benefits for the unbanked population and the marketing push from players like Airtel, customer adoption of mobile wallets has been slow. The entire mechanism of loading cash at merchant points (who don't have a great incentive to

entertain such customers), sign-up, KYC (in case of higher limit wallets) and limited merchant points where the wallet can be used to make payments pose significant hurdles in the scale-up of cash-based mobile wallets.

Direct Operator Billing has a limited use-case due to regulations while Indirect Operator Billing players are yet to establish a sound business case

Direct and indirect telecom operator billing is amongst the least talked about mobile payment solutions. Regulations limit Direct Operator Billing for goods and services not consumed on the mobile device. Also, extremely high transaction fees imposed by mobile operators limit mass exploitation of this mode of payment by content players.

Vodafone has taken the first step towards offering a solution to digital content owners that combines access to its customer base along with payment fulfillment through its billing system. For this service, it keeps 30-40% of the revenues earned for itself. This matches the revenue share taken by 3rd party app stores like Google Play and iOS app store. Other operators seem to be following suit. Considering the intuitive nature of making payments through the same mechanism as you pay/charge your mobile account presents a compelling use-case for wide spread adoption of mobile payments. Having said that, direct operator billing has lesser relevance for non-content players as their margin structures just can't support such high payment transaction charges.

Indirect operator billing is another mobile payment concept that has been championed by global players Zong (acquired by PayPal) and Boku. These players make operator billing accessible to everyone by bringing telecom operators and merchants onto the same platform (this is in effect what a Mastercard or VISA does in the banking world). It makes the process simpler and more scalable, as every merchant does not have to negotiate with every telecom player in the country and vice versa.

These players tie-up with merchants who offer ‘pay by mobile’ as an option on their payments page. On selecting this as an option, the page requests the user to input his/her mobile number. After keying in the mobile number, the user gets a notification on his/her mobile requesting an approval for the transaction. The user approves the transaction by typing ‘Y’ and the transaction is completed. Other players have minor variations to this procedure, with some players introducing a PIN to improve safety.

Both Zong and Boku have continued to sign on telecom operators and merchants over the last 2 years and have developed a vast global coverage. Both Zong’s and Boku’s networks cover over 200 telecom operators across the globe. These players started with margins in the range of 40% to 50% of revenues. And most of it went to telecom players, as their margins were typically in low single digits. Today, they claim that telecom operator share of fees charged has declined considerably and are hovering at around 10%, as the medium has begun to deliver significant results. Even at such margins, this mode of payment works only for digital content.

Boku launched in India through a partnership with Airtel in 2009. However, it has not been able to replicate its global success here. While other parameters matched up to direct operator billing, the fact that the off-deck paid content market (bread and butter business for Zong and Boku globally) did not exist in India in any material form in 2009 meant adoption remained weak. Service tax charged on top of the actual payments also became a deterrent. These models have probably been launched in India ahead of their time. With off-deck content poised for better growth in the future, indirect operating billing may be able to replicate some of its global success in India going forward.

Mobile POS

One of the most interesting technology innovations in the payments domain over the past couple of years has been the introduction of the mobile POS, an innovation driven by US-based Square Inc. It has revolutionized the card acceptance market by converting iOS and Android smartphones into card accepting POS terminals at merchant outlets through a small card reader and mobile app on the handset. Since Square arrived on the scene, others like Paypal, NCR, Intuit, Groupon etc. have followed with similar offerings. Charges levied by mPOS players are similar to payment gateways for smaller businesses (1.7% to 2.7% for PayPal Here and at 2.75% for Square). Square has grown exponentially over the past 2 years, growing from a payments volume of $1 billion in 2011, to around $8 billion in 2012. The company signed a deal with Starbucks that could very well add another $5-6 billion in payments volume each year.

The Indian market has witnessed several Square-equivalent mPOS devices/ services being launched in the last 12 months. Amongst the first to launch was Bangalore based Ezetap, a company incubated by Angel Prime and subsequently funded by a group of individual investors including Paypal co-founder Peter Thiel. MSwipe, a company funded by Matrix Partners, and Sequoia-funded Prizm payments have partnered with Axis Bank to launch Swipeon, an mPOS service. Oxigen, the prepaid cash card player, has launched an mPOS service called OxiShaan. MTS, the telecom operator, has also launched a solution called MTS mPOS, which was targeted at users of MTS mobile services. PayMate has a solution called PayPOS, an app-based service which works with iOS and Android phones.

- Square processes a third of total card based merchant payments on mobile processed in India each year
- At 650 POS terminals / million of population, India has amongst the lowest POS penetration in the world
- There are over 10 square equivalents that have launched in India over the past 2 years

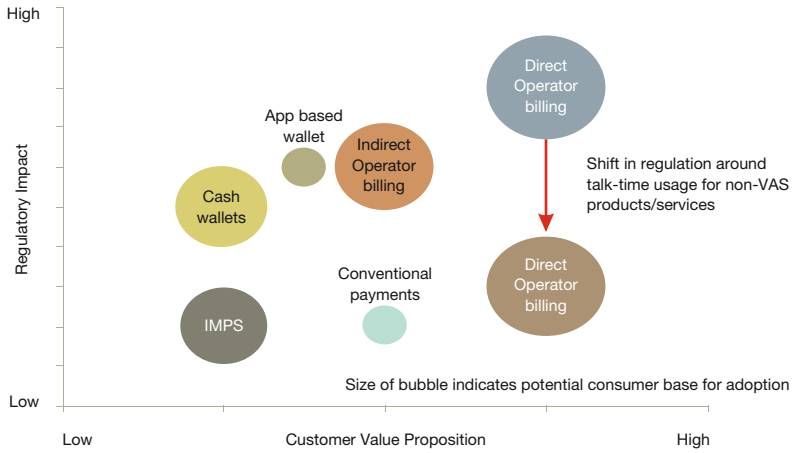
Way ahead

Mobile payments have not lived up to expectation in India despite the large mobile subscriber base and reach of the medium to a large unbanked / under-banked population. For the industry to prosper and reach its potential, it will be critical for the regulator (RBI), central node for payment guidelines (NPCI), telecom regulator (TRAI) and mobile payments body (MPFI) to define a policy framework that aligns the interests of banks, payment companies and telecom operators in a way that best serves the interests of consumers.

Many initiatives in the mobile payments arena (except probably mobile wallets) have fared reasonably well in terms of consumer adoption. The real hurdle appears to be the limited network of merchants that accept these modes of payment.

Operator related billings opens up the largest consumer base with a strong customer value proposition in terms of convenience for a customer to pay for goods and services as part of their regular prepaid recharge or monthly post-paid billing cycle. The only constraint here is RBI's restriction on the use of talk-time balance as a currency for purchasing goods or services. If RBI would change its position on this score and allow talk time balances to be used within the broad realms of the Prepaid Payment Instrument Guidelines, operator related billings could drive mass adoption of mobile payments, especially for digital goods and services.

Exhibit 56 Mapping of various mobile payment modes



Business Models

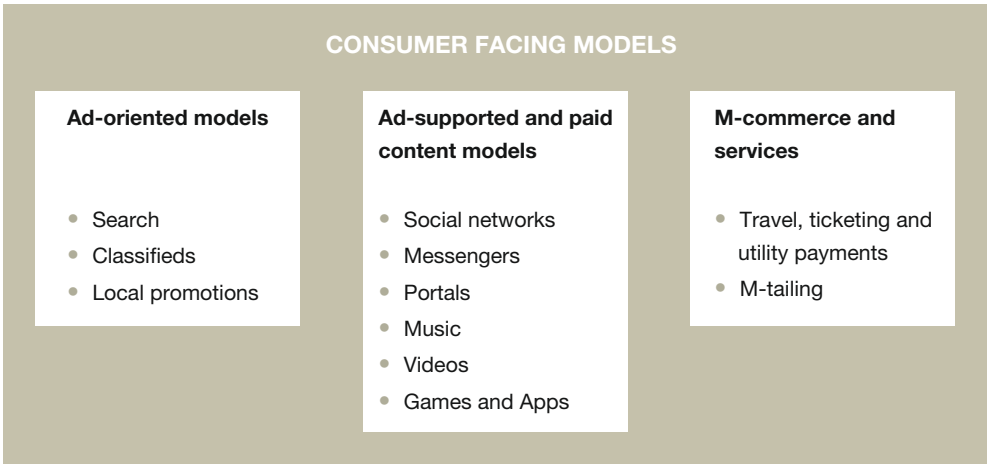
Several Opportunities Opening Up

- Global vs. Local :: Are there Structural Factors that Matter?
- M1ST vs. I2M :: David and Goliath Redux
- Ad-Oriented Models :: Classifieds and Local Promotions
- Ad-Supported and Paid Content Models :: Messengers, Portals, Videos, Music, Games and Apps
- M-commerce :: A New Revolution is Unfolding…!

Several business models through the mobile medium are now becoming attractive. In emerging economies like India, these models help address infrastructure constraints and grow the user base exponentially. Early trends have served to amplify the obvious – mobile Internet is not just an extension of PC-Internet – it is a different medium altogether.

We take a look at the different type of business models – how they have developed, their current status in India, and expected evolution.

Exhibit 57 Mobile business models by primary revenue streams



Global vs. Local: Are there Structural Factors that Matter?

The significance of global…

Search and social networking are highly technology oriented plays and demand very little local presence. Unsurprisingly, Google and Facebook rule these markets globally, and in India. Both these companies have innovated on user acquisition techniques, developed superior user engagement and have a sharp focus on monetization – all of which have had a positive impact on the industry.

While Google completely dominates the mobile search market[15], social networking has different leaders by sub-segment. Facebook, LinkedIn and Twitter, leaders in social networking, professional networking and micro-blogging have maintained their positions in mobile as well.

'Messengers' also fall in the category of technology driven plays. The leader in this segment is another global player, WhatsApp. However, there have been a few homegrown successes in this segment in the form of Nimbuzz and RockeTalk.

…And the opportunities presented by 'local'

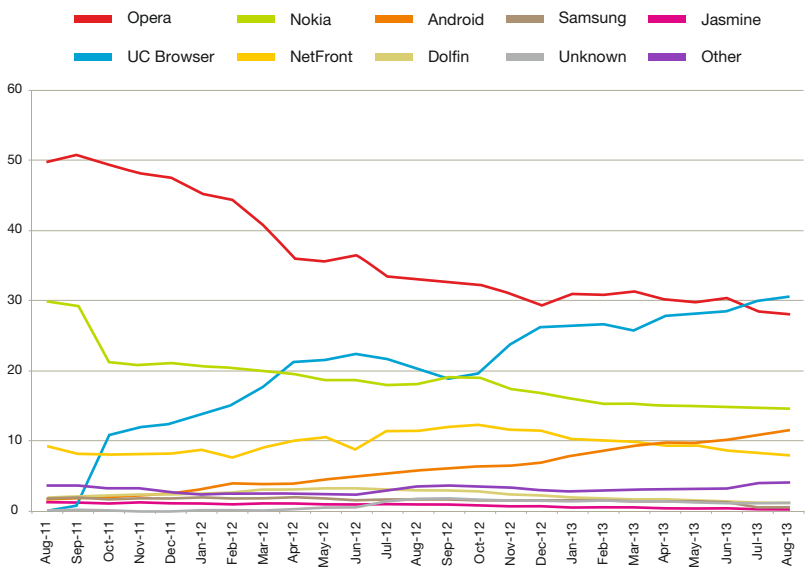
While global players are helping to develop the mobile Internet market, the real opportunities for Indian companies lie in local business categories, especially those which put location at the heart of the business model ("hyper-local" models).

Such models are getting created in areas like classifieds and local promotions. In areas like entertainment (portals, music and videos), domestic players have an opportunity to succeed due to an opportunity to aggregate localized content.

The success of UCWeb mobile browser in India drives a strong point of developing mobile specific products with local requirements and partnerships. Despite no OEM partnerships, UCWeb is consistently gaining market share in India and announced India as its second headquarter.

[15] Google's dominance of the Indian digital space has not gone un-noticed. In July, Forbes India ran a cover story asking if Google is gobbling up the Indian internet space? (Forbes India, 26 July 2013)

Exhibit 58 Top mobile browsers in India



Recognizing the demand from Indian consumers for watching videos, UCWeb modified the browser to minimize the effect of slow and erratic connectivity by allowing users to cache videos in browser and watch them later. It also partnered with Cricbuzz and Network18 to offer local content along with local language features.

Similarly, in higher involvement areas of m-commerce (utility payments, ticketing, travel and m-tailing), local players stand a greater chance of success due to the need for on-ground fulfilment capabilities.

M1ST vs. I2M :: David and Goliath Redux

Another notable trend is the emergence of mobile-first businesses (M1ST) as against those which are moving from (PC) Internet to mobile (I2M). During the emergence of PC-Internet, conventional wisdom would have suggested that traditional media houses were best positioned to become India's largest portals. But they took their time to get their act together, and start-ups took over the domain.

In the mobile ecosystem too, conventional wisdom would suggest that PC-Internet players could easily extend their businesses to the mobile. But here too, innovative start-ups are proving that mobile is a different medium that needs a unique approach[16]. For instance, Newshunt is one of the more popular mobile portals in India, which gathers content from several offline media houses and delivers it through a single app. Similarly, mobile 'messengers' is a new category that is becoming popular on mobile, where PC-Internet players have been laggards despite having instant messaging tools in place well before mobile messengers became popular. Mobile is also giving a lifeline to several categories (local promotions – previously deals, music, videos and apps), which had existed for a long time on PC-Internet, but had never cracked the monetization code at scale.

There are other categories such as search, social networking, ticketing, travel and m-tailing, etc. where large PC-Internet players have got their strategy right and shut others out. These models typically tend to be PC-Internet to mobile extensions (I2M).

[16] A phenomenon best described by Clayton Christensen in "The Innovator's Dilemma"

Ad-Oriented Models – Classifieds and Local Promotions

SoLoMo presents a huge opportunity for classifieds players to drive further adoption

Globally, online classifieds evolved from a shift of offline classifieds to the digital medium[17]. This has been the trend in India too. However, there are several new opportunities and business models emerging that leverage the SoLoMo capabilities of the mobile medium. All three categories of classifieds (Vertical, Horizontal and Local search) are evolving rapidly.

Driven by the growth in smartphones, there is a tremendous amount of activity being witnessed in the mobile classifieds segment. In the US, several companies including Yelp, Trulia and Zillow have had dramatic success in driving customer engagement through mobile devices.

In India, Verse pioneered the development of the mobile classifieds market through its USSD-based information delivery to mobile phones. The company reaches out to consumers through mobile operators. It aggregates content from multiple classifieds players and delivers the same on the mobile. In our previous report, we had estimated the mobile classifieds market to be around INR 200 crore in 2010.

The last few years have seen digital classifieds businesses increase their mobile presence in areas like restaurants (Zomato[18] and JustEat[19]), automobiles (Zigwheels, Cardekho, Carwale[20]), and real estate (99acres, Magicbricks and Commonfloor[21]). Newer players like Dineout, which offer direct table booking services have also emerged on the horizon. Multiple players including Zomato, CarTrade and Shikshaa have started using mainstream media (TV, radio) to create mass awareness of their services.

The Horizontal classifieds space has been witnessing similar levels of activity. Two of the largest players in the global classifieds market, eBay (through their investment in Quikr), and Naspers (through their investment in OLX), have been active in the space, and are expanding the digital classifieds market. One of the focus areas of these companies is the large used goods space, estimated by some to be INR 65,000 crore in size.

[17] In the US, the classifieds market declined last year by 7% to reach $1.2 billion out of a total advertising market of $17 billion in H1 2012 – accounting for 7% of the total market. In 2006, the share was 18%

[18] An InfoEdge investee, Zomato is South Asia's largest restaurant guide. It raised its fourth round of funding from InfoEdge in February 2013. The total investments into the company are now at INR 91 Crore

[19] In 2011, UK based HYPERLINK "http://www.just-eat.co.uk/"Just-Eat raised $48 million in funding round from Greylock Partners and Redpoint Ventures, along with existing investor Index Ventures to expand its international presence, the company HYPERLINK "http://www.medianama.com/2011/01/223-just-eat-picks-up-majority-stake-in-indias-hungry-zone-to-invest-5-10-m/" \t "_blank"acquired a majority stake in Bangalore based table booking site Hungry Zone, in which it planned to invest $5-$10 million over a three year period. Hungryzone has been renamed to JustEat.in (Source: TechCrunch)

[20] Founded in 2005, Carwale was acquired in 2010 by Axel Springer AG and the India Today Group

[21] Commonfloor raised its second round of funding in Oct 2012 from Accel India and Tiger Global Management

A limitless market for used products? (Image from Quikr Facebook page)

The largest horizontal classifieds players, Quikr and OLX, claim to get over 25% of their traffic from the mobile. Another leading classifieds player, Info Edge has indicated that it receives 7-15% of traffic from its mobile websites for most of its properties, its matrimony site (Jeevansathi) getting over 15% of its traffic from mobile devices.

Quikr claims to get around 50% of their traffic from smaller cities – a number that it expects will increase. Vernacular services are also beginning to gain traction with OLX offering support for multiple regional languages. Given this trend, classifieds players are beginning to focus on the mobile-only customer base to expand the classifieds market even further.

While mobile traffic has been consistently increasing, monetization on the mobile remains a weak point. Mobile still remains a medium of consumption rather than information generation. Players like Quikr have started to move the needle and now get a small portion of their postings from mobile. We believe this is a first step to long-term monetization success.

Deals with a localized flavor have a better chance of succeeding

In our last report, we had opined that ‘deals’ as a business segment was looking unsustainable. Our assessment at that time was that the future of the business model would be in location-based deals and deal platforms. Both those predictions appear to have come true. While a few of the early deals players have stuck on to their business models, most of them have pivoted on to new ones.

Foursquare was one of the early SoLoMo players globally and now has around 30 million users worldwide. It allows customers to check into merchant locations, and enables those merchants to communicate store events and promotions to the checked-in customers. Globally, there are over a million merchants on the Foursquare network. Closer to home, Delightcircle, an angel funded company, introduced a similar model in July 2012. They provide in-store marketing and location based advertising services to their customers. Delightcircle claims to be associated with more than 100 brands including Reliance Digital, Hypercity and Raymonds.

Komli, through its partnership with Yoose, offers the capability to offer “hyper-local” ads on mobile. Tata Docomo has a similar service for its GSM customers called ‘Offers Near Me’. Vodafone, which had partnered with Mydala for its local deals service, indicated that the service started attracting more than six million unique visitors a month by March 2013.

Price sensitivity of Indian consumers coupled with ubiquity of mobile phones could prove to be a potent combination for businesses developed around local promotions as a theme.

Ad-Supported and Paid Content Models – Messengers, Portals, Videos, Music, Games and Apps

Content-driven businesses can be broadly classified into the following segments:

- Mobile Messengers
- Portals
- Video
- Music
- Games
- Apps

These businesses depend on advertising or user payments as their sources of revenue. Models in this segment fall at different points in the continuum, between user-generated content at one end and professional content (or “premium content”) at the other.

Messengers

What’s up!?

Mobile messengers have gained significant traction in the last couple of years with some even terming them as the new social networks in the mobile world. The pace at which mobile messengers have been scaling in consumer adoption has put them in focus for every business seeking to increase their franchise on mobile devices.

The mobile messaging market is expected to grow 2.4 times from 2011 to 2016. During the same period, mobile messengers are expected to double their share, from 17% to 35% of the mobile messaging market. Within this segment, over the top (OTT) or off-deck mobile messengers are expected to trump messaging services offered by operators by increasing their share from 37% in 2011 to more than 46% in 2016.

Exhibit 59 Global mobile messaging trends

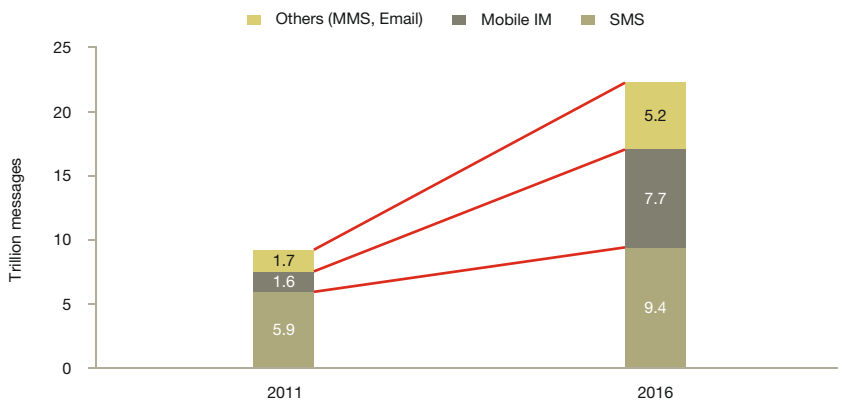
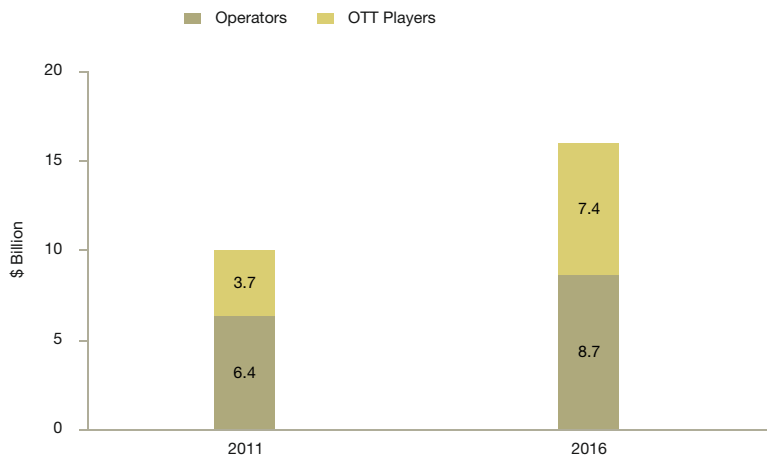


Exhibit 60 Global mobile IM revenues - ($ Billion)



Source: Informa Telecom & Media, Portio Research

Messengers offer contact-list based multi-media instant messaging services, which allow the users to communicate in voice, pictures and video messages. They tend to replace SMS and MMS services due to better features offered at much lower costs. In some cases, they also replace international calling services offered by telcos (through VoIP-based options).

Whatsapp is the global leader with over 300 million active users and a dominant presence across European countries, Brazil, Russia and the US. Whatsapp charges a nominal annual fee (waived occasionally) for usage of its services and does not feature any advertisements.

In Asian markets, local players dominate. In China, Tencent launched Weixin ("Wechat" for international markets) in Jan 2011, which already boasts of more than 300 million active users, making it one of the largest mobile messenger services in the world. Weixin has added several services on top of the instant messenger – a sharing feature, official accounts for enterprises to interact with consumers, and a Weixin membership card to enable offline merchants to run customer relationship management programs – improving the monetization potential of the offering. Line, another messaging player has over 80 million users and a leading presence in Japan. Kakaochat is the market leader in South Korea. Facebook messenger competes with all of these services and has also developed a significant presence across countries.

There are several mobile messengers vying for market leadership in India. Whatsapp is the dominant messaging player and has tied up with Reliance Communications which is offering Whatsapp access at a nominal monthly fee. Another player, Nimbuzz has over 120 million users globally, 30 million of which are from India. Nimbuzz offers a service called Ping which works on feature phones as well – this enables the service to target a much larger universe of mobile users (as compared to a Whatsapp which is available only on smartphones). RockeTalk is a local player that has built an Indian consumer base of over 20 million users on the back of an innovative voice-based model. Several other players, including Bharti Softbank's Hike, Micromax's Hookup and Imsy are trying to garner market share in the rapidly evolving Indian market.

Considering their widespread usage and increasing costs of SMS messaging, mobile messengers have a clear potential to become the killer app for mobile devices. However, the Indian market is crowded at the moment with none of the players having established a breakaway leadership position. Given the lack of localization needs of this segment, it is possible that a global technology platform may win the battle in the longer term. Local players will need to develop very strong localized use cases to prevent that from happening.

Portals

Flashback

Portals have had a significant role to play in the evolution of PC-Internet. Yahoo!, MSN and AOL have arguably defined the first Internet experiences for most people in the 1990's. Sify and Rediff did the same in India. Portals help first time users navigate an otherwise crowded market by serving as an aggregator of curated content. To do this, most portals aggregate content and, where necessary, also create their own content. Since content needs to be contextual, opportunities for local players abound.

More than half of the top 50 PC-Internet properties in the US are portals, with Yahoo!, MSN, AOL, Glam Media, Wikipedia and CBS Interactive amongst the top ten. In India, over a third of the top 50 online properties are portals, with Yahoo!, MSN, Indiatimes, Wikipedia, Network18 and Rediff among the top ten.

Mobile has evolved differently

Driven by feature phones, the first portals to evolve on mobile devices were ones managed by telcos through which they offered various value added services. Airtel had 25 million monthly visitors and around 300 million page views every month in 2012 on its portal Airtel Live. The usage of Airtel Live revolved around 75 million wallpaper downloads, 150 million music downloads, 3 million app downloads and an increasing consumption of its mobile TV services.

However, disaggregation is clearly afoot. As mentioned earlier, Apps and Games have transitioned to reaching consumers through off-deck channels viz. global app stores. Wallpapers and other content items such as ringtones, screensavers and themes are being increasingly downloaded from specialized off-deck VAS players – such as Getjar and Mobile9 – who offer them for free. Music and videos are also moving towards specialized players who bring in better technology platforms as well as a richer catalog of content. Mobile VAS players are still amongst the top portals owing to the higher proportion of feature phones. However, their position is clearly threatened by specialized off-deck players as users move towards smartphones.

Mobile portals built around News-based content likely to dominate

Similar to the trend witnessed on PC-Internet, news-based content aggregation is likely to offer the strongest proposition for mobile users. As an illustration, as many as six news

media houses (BBC, Dailymail, Guardian, Telegraph, Mirror and The Sun) have seen their news apps feature in the top ten mobile properties in the UK.

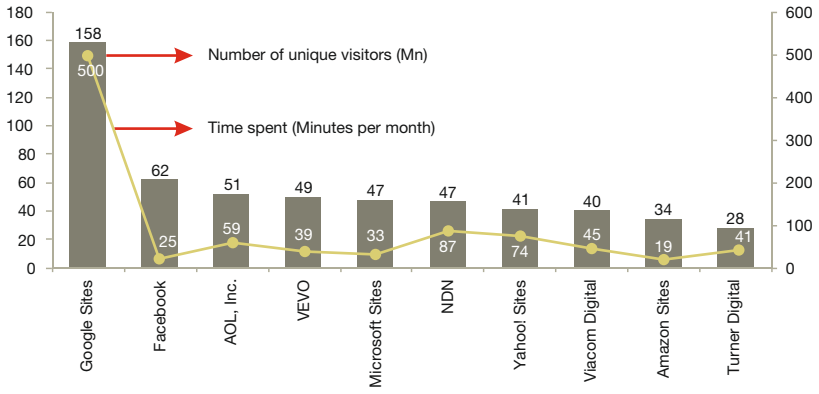
Newshunt, acquired by Verse (India's leading mobile classifieds player) in early 2012, is India's leading mobile news portal. It aggregates content from over 50 newspapers across different languages (English and vernacular) and provides it for free to its users. Newshunt works on both smartphones and feature phones and has in a short span of time become India's leading news app with over 30 million downloads, 9.0 million monthly active users and 800 million monthly page views. A brief case study of Newshunt is provided in the next section.

Standalone news players are also increasing their focus on the mobile channel. Another local player, Mobstac is offering a SaaS based platform that helps individual newspapers increase their presence on mobile devices efficiently and cost-effectively. One of Mobstac's clients, The Hindu, had over 10% of its online traffic coming from mobile as early as April 2011.

Videos

Globally, video consumption has grown rapidly to make it one of the largest categories on PC-Internet. In India too, videos have witnessed significant growth with total number of videos watched growing to 3.7 billion in March 2013 from 1.9 Billion in March 2011, an approximately 100% increase in 2 years.

Exhibit 61 Top video properties in the US – June 2013

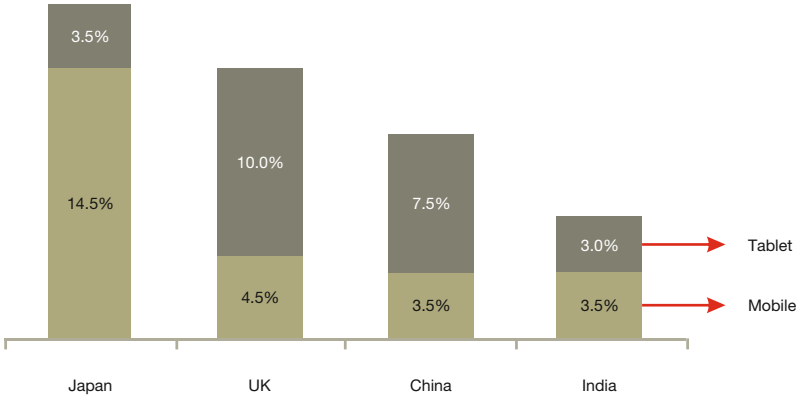


Source: Comscore video metrix

In the US, most players in the top ten offer free ad-supported videos through varying business models. While Youtube has a higher proportion of user-generated content, Vevo primarily relies on distribution of premium music videos.

Mobile has also begun to play a significant role in video consumption across the world with over 15% of the total video consumption already moving towards mobile devices in countries like Japan and UK.

Exhibit 62 Share of mobile devices in overall video consumption (% of total time spent)



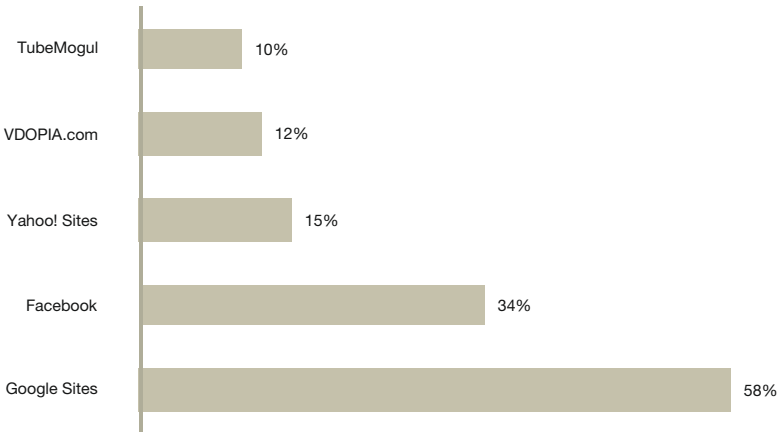
Source: Ooyala mobile video index Q2 2012

There are three types of business models which have been successful in the videos space – Ad-supported user generated content, Ad-supported premium content and Paid premium content. Freemium models also exist where a part of the content is offered for free (generally ad-supported), and the remaining part is offered for a fee.

YouTube dominates user-generated video content

Other than in China[22], the user generated video market has been dominated by YouTube globally. Large publishers view YouTube as an additional channel for monetizing their content given the large user base they can target through the platform. In India as well, Google has built an enviable position amongst online video content platforms with its various sites reaching more than 58% of India's total Internet user base.

Exhibit 63 Reach of top video properties in India (% of total Internet users) – Mar, 2013



Source: Comscore; March, 2013

[22] In China, YouTube clones, Tudou and Youku have dominated the user-generated video content market

The critical differentiators for YouTube as a platform revolves around its technological superiority and targeting capabilities offered to advertisers.

Focus on local markets can help deliver a differentiated proposition

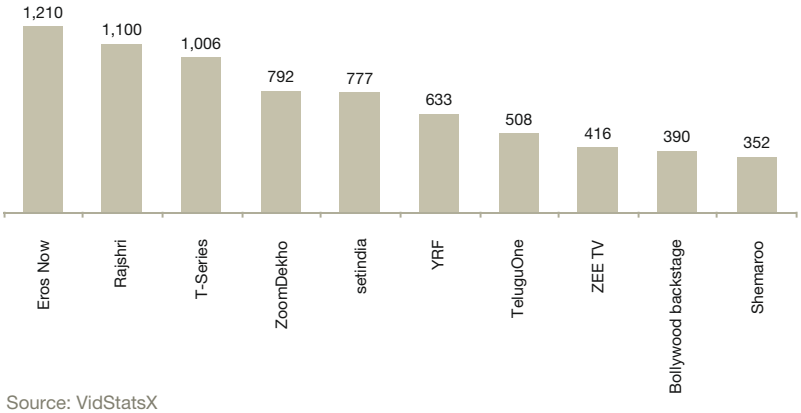
Vuclip is a mobile focused aggregator of video content. The company focuses on India, Middle East and other emerging markets. It has seen its user base grow to 45 million globally, a third of which is based in India. Vuclip's focus on localizing its offering – through a WAP site which works on all devices (including feature phones) and availability of local/regional content – has been a crucial factor for its success.

Vuclip now delivers over 25 million videos to its users on a daily basis. They acquired Jigsee in early 2013 to strengthen their offering for feature phones. Their app for the Nokia series 40 devices crossed a million downloads recently; India accounting for 60% of these downloads. They are offering better targeting capabilities for advertisers by developing channels focused on niche communities – they launched a women oriented channel called Mira and an education portal through a tie-up with Khan academy targeting the K-12 and higher education segments.

Local digital content producers emerging on the horizon

While players like YouTube and Vuclip have developed a strong position in the online video distribution market in India, a significant quantum of local Indian content still remains to be digitized. This presents a large opportunity for local players who can build a differentiated position on the basis of their content catalogues.

Exhibit 64 Top content producers for YouTube in India, by cumulative video views – Aug 2013 (Mn)



Source: VidStatsX

YouTube and Vuclip tend to aggregate content from three types of players – large media houses, players who create content specifically for the digital medium, and smaller content owners (who own some content rights but tend to depend on third parties for digitizing and monetizing their content). As can be seen in the Exhibit above, the online video content providers is dominated by offline media houses who have demonstrated a certain foresight in developing alternate monetization mechanisms through the digital medium.

Amongst the larger players, Rajshri has built a commendable position in the online videos segment by establishing a digital division that concentrates on creating, repurposing and aggregating content for distribution through online channels. It boasts of a catalog of over 100,000 hours of video, 25% of which is their home production. The Rajshri.com portal was launched in November 2006 by releasing Hindi movies (such as Vivah, Hattrick, Life in a Metro and Blue Umbrella) online. Rajshri Media has also taken the initiative to create shows targeting web and mobile audiences. It launched "Akbar Birbal Remixed" (90 episodes of three minute length each) as India's first show for the Web and Mobile. Rajshri has seen significant growth over the last few years, and currently serves around 100 million ads per month through its various distribution channels (YouTube, Hulu, iTunes, Netflix, TOI, Yahoo!, Rajshri.com, etc). Around 90% of Rajshri.com's revenues come through advertising, while the remaining come from transactions carried out on platforms like iTunes.

Paid premium video content segment beginning to witness heightened activity

Netflix is the poster child for players looking to build businesses around paid premium content. The company transitioned from being an offline DVD distribution business to an online streaming business effectively. While their PC-Internet success is well documented, the company has almost doubled its share of total mobile data usage across North America from 2.24% to 3.98% in the last year[23]. It is believed that this number will increase significantly, and that longer form video will become more mainstream on mobile networks.

Paid premium videos in India originated from telcos who offered mobile TV services to their consumers through a subscription model. A large part of this success can be attributed to Apalya (a portfolio company of Kalaari Capital, IDG Ventures, Qualcomm Ventures and Cisco Ventures), who developed technology that enabled delivery of video content through existing telecom networks. Apalya has been powering the mobile TV apps of most of the leading telcos in India. More details on Apalya's success in the mobile video segment are captured in a case study on the company in the following section of this report.

Other players that have gained traction in the Indian mobile TV segment include nexGTv, Sony LIV, Ditto TV and Zenga TV. nexGTv's app has been downloaded 7.5 million times while Ditto TV has seen more than a million downloads. These services are offered through relatively affordable packages – as an illustration, Ditto TV offers packages of 3 channels, 7 channels and all (more than 50) channels at INR 49, INR 99 and INR 129 for a monthly subscription.

There are also players who focus on long-form content like movies and TV serials. Bigflix has recently entered into a catalogue tie-up with Disney for distribution through mobile devices. Apalya's Myplex has established content partnerships with several international production houses for distributing their movies on a pay-per-view basis. Another player, Spuul has tied-up with Yash Raj Films to offer limited content for free along with options for monthly subscriptions and pay-per-view for premium content. Apple's launch of iTunes in India also provides access to video downloads and rentals to Indian consumers though their catalogue is limited as of date.

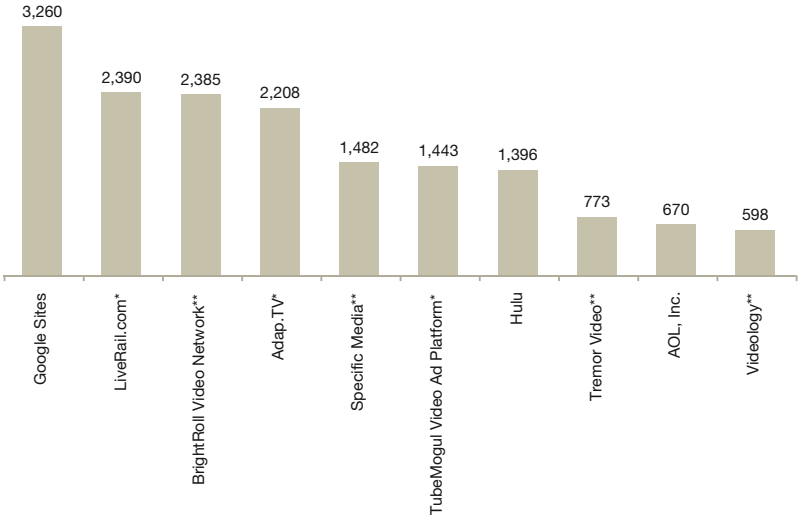
[23] Google Play, in comparison has a 4.37% share (Sandvine, May 2013)

While there has been significant work in the mobile video segment in India, adoption levels for paid models have yet to gain mass scale because of relatively low mobile Internet adoption, piracy and limited online penetration of digital payments. Having said that, this segment is likely to witness rapid adoption as these issues get ironed out in coming years.

Ad networks will play an important role in monetization of mobile video content

While larger global technology platforms dominate the list of top video websites (globally), a top-10 ranking by the number of ads served has as many as five video ad networks/exchanges in it.

Exhibit 65 Top online video ad properties by number of ads served – June 2013 (Mn)



* Video ad exchanges, demand side platforms or supply side platforms
** Video ad networks
Source: Comscore video metrix

Video ad networks improve targeting capabilities and enhance awareness among advertisers. Video advertising is rapidly emerging as a substitute for brand advertising on TV due to the similarity in consumption and delivery patterns of these advertisements (with the introduction of pre-roll, in-roll and post-roll advertisements in online videos). While premium content providers attract brand advertisers directly, ad networks play a significant role in helping publishers with semi-premium and non-premium video inventory (a segment that is growing at a rapid pace) monetize their content. Revenue shares remain similar to that in the mobile ad network segment with technology platforms getting 10-20% aggregators like ad networks and exchanges getting 15-20%, publishers getting around 50% and the ad agency 15% of total ad revenue generated.

The higher prevalence of free ad-supported content in India compared to other markets make video ad networks even more relevant for the Indian context. Vdopia is one of the leading video ad networks that focuses primarily on smartphones. It uses patented technology to make video ads clickable and interactive, thus increasing engagement levels on video advertising. Komli is another player who has developed a strong capability in video advertising through its strategic investment in Jivox's video ad network business.

Music

Digital format leading the growth of the music industry

Digital music has been leading growth of the music industry for around a decade, with physical music distribution revenues being in terminal decline. As always, piracy continues to plague this industry. Several countries have adopted a four pronged approach to tackle piracy – improve consumer awareness about the impact of piracy, improve availability of legitimate digital content at affordable prices, curb sites promoting piracy (in coordination with larger digital companies like Google and PayPal and the ISPs), warn and then punish people involved in copyright infringements.

Notwithstanding widespread piracy, digital music has continued to grow at a fast clip across global markets. Digital music album and track download revenues have grown by 14.1% and 5.1% respectively, while physical distribution revenues declined by 12.8% in the US in 2012. Two models dominate the digital music segment – pay per download model (pioneered by Apple iTunes store) and the freemium streaming model (made popular by Pandora).

Indian market still stuck on CRBTs

In India, the digital market plays an even larger role in the growth of the music industry. Digital music revenues crossed the physical distribution revenues in 2011 accounting for INR 520 Cr out of a total of INR 900 Cr. Mobile contributes around 90% of the digital revenues, with around 70%-80% of that coming from CRBT (Caller Ring Back Tunes). CRBT's success is due to the fact that it is more of a service than a product that presents no scope for piracy. CRBTs have hit a peak though, and have also been impacted by the new VAS regulations that are aimed at curbing malpractices around driving CRBT subscriptions without users actually wanting the service. While CRBT has been a significant portion of the Indian music market over the last decade, it is clear that future growth has to come from elsewhere.

Paid downloads still driven by operator payments

Driven by telco portals, the paid downloads market too has existed in India for a long time. Players like Hungama have acted as content aggregators and partnered with operators to deliver music on mobile phones. Hungama has around 20 million subscribers and has facilitated 75 million downloads till date. They also offer subscription packages that allow users to download unlimited music for a month.

Nokia's OVI store has also enjoyed reasonable success in the Indian music download market. Nokia music store in India offers 4.5 million songs and is considered to be one of the best digital music catalogues available in India. Nokia has been promoting subscriptions rather than song purchases through operator tie-ups, and has also been bundling access with phone purchases, leading to increased usage. As of November 2012, there were an estimated 1.4 million songs accessed from the Nokia music store every day. Nokia offers three options at INR 250, INR 99 and INR 50 for a quarterly, monthly and

weekly subscription respectively. They have a tie-up with distribution agencies like Oxigen that offer renewals for its music subscriptions offline (not through operators), but the bulk of volumes still remain with operators as of date.

Telcos also actively promote their music offerings, with players like Aircel offering unlimited daily downloads at INR 5. Airtel is among the leaders in the space, and had around 150 million song downloads in 2012. Similar to CRBTs, telcos dominate the music downloads market when it comes to revenue realization and hence this has remained a marginal revenue source for other players in the value chain.

Ad-supported models are emerging, mobile giving a lifeline

Despite questions around their economics, music-streaming services are increasingly being considered as the future of mobile music. There has been considerable activity in that segment in India as well. Several players who had started with streaming of licensed music for PC-Internet users (like Raaga and Gaana), have started focusing on mobile devices. Newer players like Saavn and Dhingana have launched their service with a strong inclination towards streaming through mobile devices. Most players have launched mobile apps across platforms (Android and iOS platforms), some of which have grown to rank amongst the top downloaded mobile apps in India.

Considering the nascency of the market, most music streaming players in India have been focusing on expanding their music libraries, improving their technical capabilities and building a large consumer base. Dhingana, which raised $7 million in funding from Lightspeed Venture Partners, Inventus Capital Partners and Helion Venture Partners, had around 5 million downloads of its mobile app by the end of July 2013. Dhingana has been expanding its offerings to cover multiple platforms and devices, as well as improving the delivery quality through techniques like adaptive streaming to improve quality of service for consumers. They have around 15 million active visitors globally, and offer million plus songs covering most Indian languages and genres.

Times Internet owned Gaana claims to have a user base of more than a million registered users that have grown more than 70% in 2012. Gaana had 4.6 million unique visitors on its online website as of Feb 2013. It has been one of the late movers to launch its mobile app which was released in early 2013. However, it has demonstrated impressive growth since then with over 500,000 app downloads in just over a month. Gaana recently entered into a partnership with the South Indian Music Companies Association (SIMCA) to acquire licenses for 55,000 regional music tracks owned by 79 music labels. They also entered into similar tie-ups with other large studios like Yash Raj Films, Magnasound, Unisys Infosolutions and INRECO to add more regional music to their roster.

Expanding in the other direction, Saavn has entered into a partnership with Sony music and Universal music to add over 250,000 English tracks to its catalog. This is on top of the million-plus regional songs they offer through partnerships with over 300 South Asian music labels. Saavn had around 10.5 million users by Feb 2013 with over 2 million of them coming through mobile devices. India accounted for around 60% of their total user base.

Monetization experiments beginning

Gaana has entered into a partnership with Airtel to allow its users to set songs as their CRBTs on their Airtel mobile devices, something that is expected to evolve into a commission-based deal. Dhingana has entered into a two year deal with Universal where it will promote new albums of Universal, raise awareness and increase the number of listeners in India. Dhingana has also launched an ad platform for brands. It offers targeting based on several parameters including genre, location, demographics and the platform used. Saavn also has indicated plans to launch a paid service that allows users to cache songs and listen to them offline (without a data connection).

Despite India being a country that loves music (whether Bollywood or otherwise), the legitimate music industry has remained small due to rampant piracy. Digital distribution of music, especially through mobile devices presents hope for a reversal of that trend.

Games and Apps

An INR 2,700 Crore opportunity

In 2012, the global Games and Apps market was estimated at $10 billion, with Apple's App store and Google Play accounting for a major portion of this. Games constituted 80% of this market. Advertising revenue is estimated to have been between a quarter and a third of the total revenues, with the balance being constituted by paid-app and in-app purchases.

The gaming transition

In India, we have estimated earlier in this report that the potential market for paid apps will be around INR 2,000 crore by 2016. Most of the time spent by Indian consumers on apps and games today is on free ad-supported content. Free mobile games supported by ads account for over 40% of the time spent on apps and around 10% of time spent on the mobile web, globally. At similar levels, games would account for 25% to 30% of time spent on advertising supported traffic. This leads to a potential of INR 700 crore to INR 850 crore in advertising revenues for mobile games and utility apps by 2016, on top of the paid app revenues. This translates into a total market opportunity of INR 2700 crore for mobile games and apps.

Local content does work

While Apple's user and revenue base is still dominated by the US, the story is a little different for Android. The users are far more distributed globally and Google Play's revenue split is beginning to trend towards a similar mix. Japan is the largest market for Google Play, followed by the US, with Korea not far behind. These three markets account for nearly two thirds of Google Play's global revenues. And there is a direct correlation between these revenues and the number of local companies that have been successful in those markets.

Successful gaming companies in South Korea include NHN, Com2US, GAMEVIL, NextFloor and SUNDAYTOZ, while those in Japan include DeNA, GungHo Online Entertainment, GREE and COLOPL. This is not only due to the rising demand for mobile games in these countries, but also due to the advanced technical stature of the companies present there. The demand for mobile games continues to rise in India. However, the challenge facing Indian gaming companies is one of creating a large enough roster of high quality games with a local flavour to avoid the market being swept away by global content. The other approach for Indian gaming companies could be to create games with global appeal to start with, which would present a much larger market for monetization.

Indian market currently defined by operator relationships

Unlike most global markets, India did not have a large console gaming market (for the PC segment) to build upon. This has meant that console and PC gaming has remained subscale in India and has not attracted much attention from any of the global leaders in this area. This is likely to reverse given the growing user adoption of mobile gaming.

The market till now has been characterized by operator relationships, with almost all the revenues being driven through on-deck portals. Larger players in the Indian gaming market include Nazara, Disney UTV (through the acquisition of Indiagames), Hungama and Zapak (Jumpgames). India is a key market for most of these players and they tend to have engagements with all the operators in the country. While most players have homegrown content, they also tend to have distribution relationships with global players. Nazara was a partner for distribution of EA games in India, before Disney UTV started distributing the same. The latter has also recently struck a distribution partnership with Gameloft (a global game developer/publisher headquartered in France). Estimates suggest that more than half of the revenues of these players could be coming from international content. For foreign players, the driver behind partnering with local gaming distribution firms has been the relationships these players have with telecom operators. However, with off-deck channels outpacing operator portals for distribution of gaming content, the value of local partnerships is likely to be challenged going forward.

New revenue models coming into play

Most of the gaming revenues in India are driven by subscription-based services today, where the consumer pays a fee for accessing all the gaming content for a fixed period of time. There is also a portion of revenues which come from paid downloads. Advertising revenues are beginning to gain traction with around 5-10% of revenues of Indian gaming companies coming from advertising spend.

Freemium models account for over 65% of app revenues globally, and more players are expected to experiment with the same in India. Rolocule Games, an Indian gaming developer, is focused on developing iOS games and monetizing them through a freemium model. Vserv, one of India's leading mobile ad network, has launched Appwrapper, a "paywall" for mobile apps, which allows app developers to easily monetize their apps through the freemium as well as micro-subscription models. Vserv has already signed up Nazara, DisneyUTV, Jump Games and Twistmobile as clients for Appwrapper. It also has a tie-up with Vodafone for providing operator billing as a payment option.

Local content beginning to scale

Localized mobile content was hard to find in the Indian markets until a few years ago. However, that seems to be changing gradually. DisneyUTV recently reached 200 million downloads on the Nokia OVI store, the first company in the world to do so. India is the top market for DisneyUTV and their top 10 apps show that localized content has finally started seeing traction.

Exhibit 66 DisneyUTV top 10 games in Nokia OVI store (Feb, 2013)

#	Game
1	Gangstar City Free
2	GT Racing 2 Demo
3	Bike Race
4	The amazing Spider-Man demo
5	Space war
6	Stunt racing car
7	Car Dhoom
8	Temple Saviour
9	Car Race
10	Rally Drive Free

Source: IndiaGames Facebook Page

Hungama, the Bollywood digital content company and Gameshashtra, a game studio, have entered into a partnership to create local games. Hungama will bring in licenses for Bollywood, celebrity, lifestyle and sports content and Gameshashtra will develop games around that. Needless to say, the success mantra for local content will continue to pivot around Cricket and Bollywood, at least for the foreseeable future.

There has also been a pick up in activity on the social gaming front. Zapak partnered with Disney to bring Disney's global Club Penguin to India. Nazara has launched its social games site Gcity.in. It also acquired Djuzz and MyGamma, the mobile games and apps portal from BuzzCity, which has around 4 million users. Zapak has launched an engagement wrapper, Zapper, to improve user retention and game discovery.

Most activities in the gaming space are focused on creating localized content, improving revenue realization through different revenue models, enhancing user engagement and creating a loyal consumer base. The market seems to be moving in the right direction.

M-commerce: A New Revolution is Unfolding…!

From experimentation to going mainstream

Mobile was a foster child for digital commerce players until 3-4 years ago. The mobile channel was always looked upon as a means to express the level of innovation, futuristic business outlook and other forms of aesthetic appeal but never as a mainstream channel for monetization. Companies simply did not fathom the disruptive potential of this medium. As a result, mobile commerce failed to impress until 2010 and constituted less than 3% of e-commerce in most mature markets.

The only exception was Japan, which boasted mobile commerce revenues of $10 billion in 2009, accounting for over 20% of the country's digital commerce market. The momentum this medium has gained over the past 5 years has made everyone sit up and take notice. We believe the world is at the cusp of an m-commerce revolution which will redefine the rules of digital commerce globally. Besides "mobile first" models emerging, getting their mobile strategy right has become a top priority for most e-commerce companies today.

Mobile offers a differentiated value proposition against PC-Internet e-commerce models and that is "commerce on the go". Categories like ticketing, utility payments, recharge and travel are extremely well suited for the mobile medium and have been early ones off the blocks. Mobile purchase of physical products has been slower to pick-up, but there are strong use-cases emerging that could give it the fillip required to make it a mainstream channel for retailers.

Both US and China have started witnessing significant growth in m-commerce revenues. US market growth has been kindled by the explosive growth of tablets whereas China's growth has been attributed to the rapidly growing penetration of mobile Internet. Though still early days, India too is beginning to witness encouraging signs that seem to suggest that the m-commerce revolution may not be far away.

Honey, please check BookMyShow to figure out our evening plans…

Fandango (BookMyShow of the US) demonstrated spectacular growth, movie-after-movie and quarter-on-quarter, in their mobile ticket sales. They sold 30% of their tickets through mobile devices in 2012. Fandango was able to overcome limitations around payment complexities and form factor (screen size) that have been key impediments to adoption of m-commerce. They demonstrated that well-designed, intuitive apps with fast navigation can provide an enhanced experience and greater convenience than the larger PC screen. Besides Fandango, the larger entertainment ticketing players in the US, including Ticketmaster, Stubhub (acquired by eBay) and Eventbrite have all demonstrated a strong intent to invest in making mobile as an important sales channel. Stubhub developed mobile apps in early 2011. By mid-2012, mobile devices accounted for more than 25% of Stubhub's traffic and 10% of its sales. Ticketmaster had around 7% of its bookings coming from mobile devices in 2012, and expects it to grow to around 14% of its total bookings in 2013.

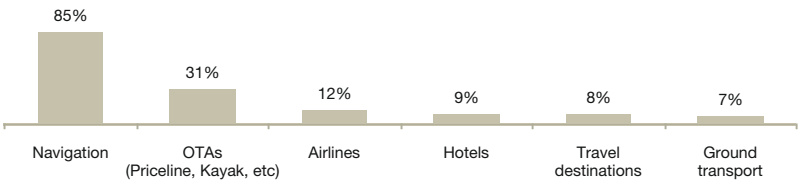
Interestingly, BookMyShow replicated this m-commerce success in India and became one of the first Indian digital commerce companies to match-up to its global peers in terms of consumer adoption of the mobile medium. Today, 25% of BookMyShow's sales happen through mobile devices. What is even more noteworthy is that they reached this milestone in less than 2 years of launching their mobile apps. Besides shifting volumes from PC to mobile, adoption of BookMyShow's m-apps have opened up an untapped market in Tier II/III cities and towns where PC based broadband penetration is still limited. 40% of their mobile users are mobile-only consumers.

Mobile has emerged as the preferred personal entertainment device and this throws open a large opportunity to distribute offline entertainment consumption through the medium.

Travel bookings on the go

The travel market has been relatively slow to adopt mobile as a medium for online bookings but has been catching up on this score in recent years. Mobile bookings accounted for around 5% of the $162 billion online travel bookings in the US. Online Travel Agents (OTAs) are driving growth in this segment – more than 30% of mobile Internet subscribers accessed an OTA mobile site or app in 2012. As per a report by Google, mobile searches for travel bookings soared 400% between June 2011 and June 2012 whereas that for desktop declined by 79% in the US.

Exhibit 67 Reach of travel categories (% of total mobile Internet users)



Source: xAd, Telemetrics August 2012

Priceline and Expedia are leading the movement among the OTAs; both securing around 10% of their revenues from mobile devices in 2012. Priceline's Booking.com boasts of over 20 million app downloads that drove $3 billion of mobile bookings in 2012, a 200% increase over 2011. Expedia, on the other hand, has had its app downloaded 30 million times but has lagged in mobile booking value due to a higher percentage of their transactions being air ticket bookings business vis-à-vis Priceline. Hotel bookings seem to have picked up faster on mobile than Air. Expedia's Hotwire product gets 25% of its hotel transactions from mobile devices.

Mobile has been the accepted channel especially for last minute deals and same day bookings. Over 70% of reservations made through smartphones on Orbitz were within a day of check-in. Expedia also gets 15% of its current day flight bookings from mobile devices. There are new businesses emerging to take advantage of these opportunities. HotelTonight, a mobile-only booking app, which facilitates last-minute deals on hotels for that night only, has already been downloaded more than six million times.

Mobile devices are also attracting significant traffic for ad-based travel content. Tripit, a travel planning and notifications website, gets around half of its revenues from mobile devices. Over 10% of TripAdvisor's 60 million unique visitors access its content through mobile devices. Kayak[24] (the travel meta-search engine) has had its mobile app downloaded more than 17 million times. Over 14% of Kayak's queries originate from mobile devices. Mobile accounted for 25% of hotel only transactions for Orbitz in Dec 2012.

The Indian travel market has also woken up to the potential that mobile presents. Leading the race are OTAs, Cleartrip and redBus, which have built a reputation of being pioneers in product innovation. Cleartrip, with an outstanding mobile interface, already gets around 12% of its total bookings and 20% of its searches from mobile devices; not far behind global leaders. Within 6 months of launch, redBus' mobile apps have been downloaded more than 380,000 times and contribute over 7% of their overall bookings. MakeMyTrip, India's leading OTA, has reported around 700,000 downloads for its mobile app that attracts more than 8.5 million unique visitors monthly.

While other travel categories have seen digital players extending their offerings to the mobile medium, local taxi services are beginning to see a more radical shift. Companies like Ola cabs and TaxiforSure have demonstrated how mobile technology can dramatically increase convenience for consumers and efficiency levels for taxi operators.

Olacabs has developed an intuitive app that helps users locate the nearest cabs on a map and make bookings for travel immediately or at a later time. It also helps the user track the cab on a map until it reaches him/her, removing inherent uncertainties from the process. On the supply side, cab operators are provided an android phone with the app embedded on it. All they need to do is log onto the app, which activates them on the Olacabs system and makes them visible to users looking for a ride. The app also helps the driver navigate to locations they may not be familiar with, in addition to serving as the billing system for calculating the total fare at the end of the ride. From the user's perspective, there is no haggling around fares because the Olacabs app on their phone shows the exact same fare they need to pay for their ride. Today, over 30% of Olacab's bookings are made through their mobile app.

Olacabs acts as an online aggregator and just provides the technology platform and the customer service. The company aggregates over 5500 cabs owned by 1500 operators. Their service has helped operators reduce the idle time of their cabs from 50% to less than 30%, thereby increasing their income generation and return on investment of the vehicle(s).

With immense benefits accruing to both consumers and operators, such models hold tremendous potential to organize hyper-fragmented markets. Location will open up immense possibilities for innovation across travel categories. Indian travel players have also indicated higher levels of loyalty among their mobile customer base. It seems inevitable that the next set of travel wars are likely to be fought on the mobile turf.

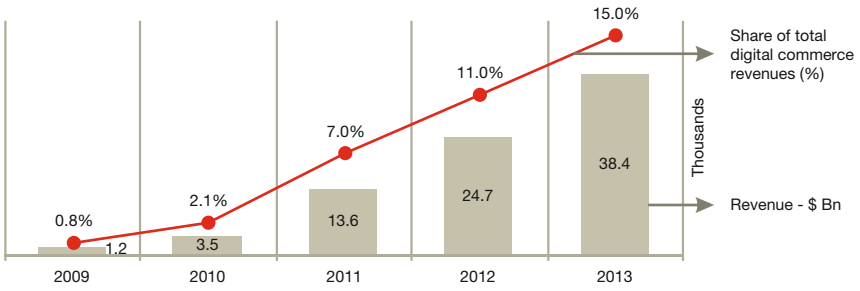
[24] Kayak was recently acquired for $1.8 billion by Priceline

M-tailing: buckle up, time to take off…!

Global markets have been slow to adopt m-tailing (retailing through mobile devices). This medium has also encountered adoption challenges just as e-tailing did in its early days. There have been apprehensions around the quality of shopping experience through a smaller screen but m-tailing seems to be overcoming these hurdles quite rapidly.

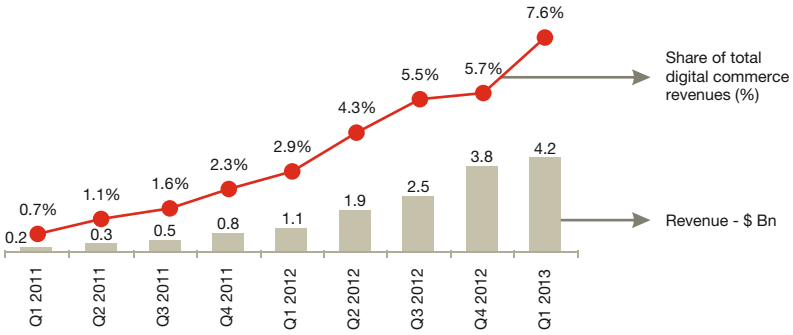
Japan was first off the block with 20% of its digital commerce market coming from mobile as early as 2009. Japanese e-commerce giant Rakuten's mobile transactions now exceed 30% of its overall sales, while the country's leading fashion e-tailer, ZoZotown generates more than 40% of its sales through purchases made on mobile devices. With mass adoption of smartphones and tablets, m-tailing has gathered momentum in the US and China as well. This year, the US m-tailing market is poised to grow to 15% of the total digital commerce market and reach $38 billion in sales. China's growth in m-tailing in the last two years has been even more impressive. M-tailing's contribution to digital commerce leapfrogged from a mere 0.7% in the first quarter of 2011 to 7.6% in the same period in 2013.

Exhibit 68 M-tailing revenues - US ($ Bn)



Source: eMarketer, Econsultancy

Exhibit 69 M-tailing revenues - China ($ Bn)



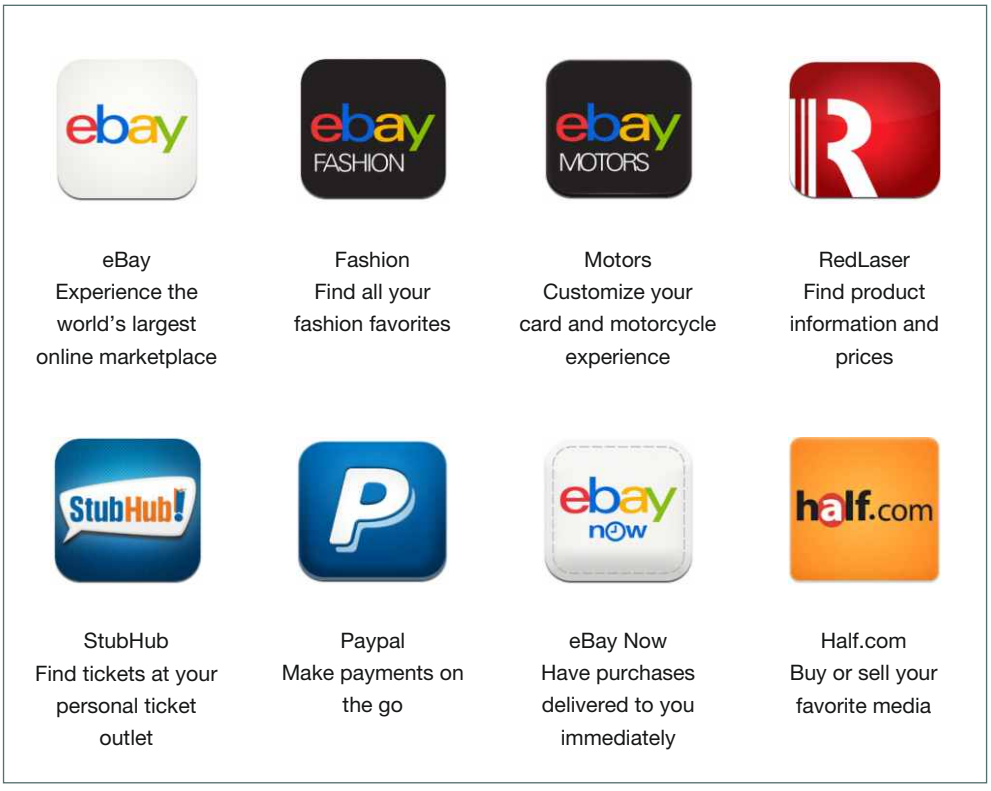
Source: iResearch

eBay's mobile resurgence; flag-bearer of m-tailing

The battle for leadership between Amazon and eBay has been going on for more than a decade. Amazon's marketplace model had put them considerably ahead of eBay in the race. However, eBay incessant focus on m-tailing seems to be helping it win back some market share from Amazon. In 2012, eBay facilitated product purchases (GMV) worth $13 billion through mobile devices. This constituted 17% of its total GMV of $75 billion. Such is the momentum brought in by m-tailing, eBay revised its mobile GMV projection of $8 billion for 2012 towards the third quarter of 2012 to $10 billion, and still overshot the mark by $3 billion. Today, eBay is the largest m-tailing company in the world, and its mobile success has been the cornerstone of its revival.

eBay's success in mobile is attributed to several factors, the most critical amongst them being the early identification of mobile's potential and heavy investments which went into developing the channel. eBay bought Critical Path Systems, an app development company which it had partnered with earlier. They introduced several incentives for customers, including an exclusive mobile gift guide, mobile-only deals and special inventories for mobile. eBay's app downloads reached 179 million in July, 2013 since its launch in Q3 of 2008.

Exhibit 70 eBay apps catering to different customer segments



Source: eBay

Not one to be left behind for long, Amazon has also become very active in the mobile segment, with multiple apps targeted at different customer segments – Price check, Student and Windowshop for finding deals and surfing products, Appstore for selling

Android apps, Amazon MP3 and Cloud Player for music, along with Amazon mobile for regular shopping on mobile. Amazon has also made heavy investments in the Kindle platform resulting in major gains. While Amazon's actual mobile sales numbers are unavailable, analyst estimates suggest that it could be around $5 billion – a little over 8% of its overall GMV of $62 billion in 2012.

India – the turf wars begin

Taking a cue from the traction global marketplaces like eBay and Rakuten were generating, mobile aggregators like ngpay and Atom offered a bouquet of services ranging from mobile recharges, event ticketing, travel booking and physical product sales. Traction on the services front has far exceeded that of physical product sales for these players. However, with pure marketplace models still at an early phase of development even in the more evolved e-tailing segment, the performance of physical product sales through these platforms would not be a true indicator of the potential for m-tailing in India.

M-tailing offers a unique value proposition and use case in India where broadband and PC penetration beyond Tier I and Tier II cities continues to be limited. A large population in India is likely to leapfrog the PC screen and experience Internet for the first time on their feature phones and smartphones. With limited penetration of organized retail beyond Tier I/II cities, mobile is likely to become the primary access channel for consumers seeking quality products and services in smaller towns. A recent survey by eBay India indicated that approximately 50% of their mobile shoppers came from non-metros. Mobile also offers the advantage of "commerce on the go" which has a worthy use case for gifting, last minute deals and location based offers. Besides, the success of mobile for global e-commerce players suggests that e-tailer apps are likely to become shopping buddies for Indian consumers.

Some Indian e-tailers have already tasted a certain degree of success in their mobile forays. Apparel & lifestyle e-tailers, Myntra and Yepme claim that 12% and 10% of their transactions respectively are coming from mobile while leading marketplace, Snapdeal continues to demonstrate the traction marketplaces have enjoyed with m-tailing and claim that 15-20% of their transactions are done through mobile devices.

Attractive discounting and offers are being offered to get consumer to make their first mobile transactions. Rules of the game here are a bit different and e-tailing incumbents might find it difficult to replicate their success in this arena. Mobile is no more being seen as another channel, m-commerce strategies are giving sleepless nights to senior executives and the next few quarters would be very interesting to see what shape the Indian m-tailing landscape takes. We believe, m-tailing in India will closely follow the Japanese market and reach a higher penetration of digital commerce as compared to the US and Europe.

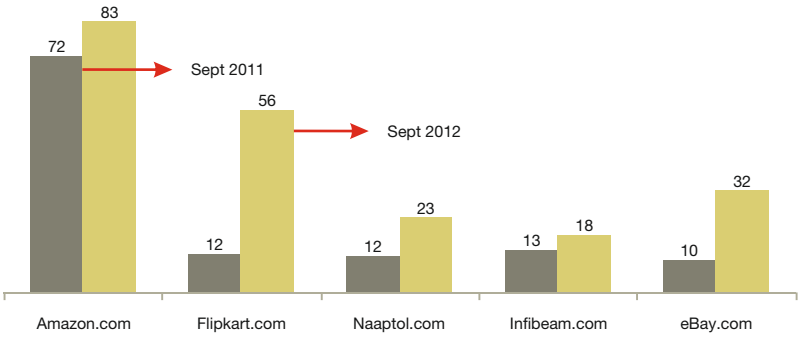
Around 14% of the total mobile web visits in India were to m-commerce websites in September 2012, indicating significant potential. As shown in the exhibits below, the larger e-tailing players have been witnessing rapid growth in their mobile traffic over the last year, which is only likely to gather pace going forward.

Exhibit 71 Top m-tailing players by mobile web visitors

#	Company
1	Amazon.com/Amazon.co.uk
2	Flipkart.com
3	Snapdeal.com
4	Homeshop18.com
5	Naaptol.com
6	Indiamart.com
7	Infibeam.com
8	eBay.com/eBay.in
9	Jabong.com
10	Myntra.com

Source: Opera State of the Mobile Web, September 2012

Exhibit 72 Growth in mobile web visitors for select players



Source: Opera State of the Mobile Web, September 2012

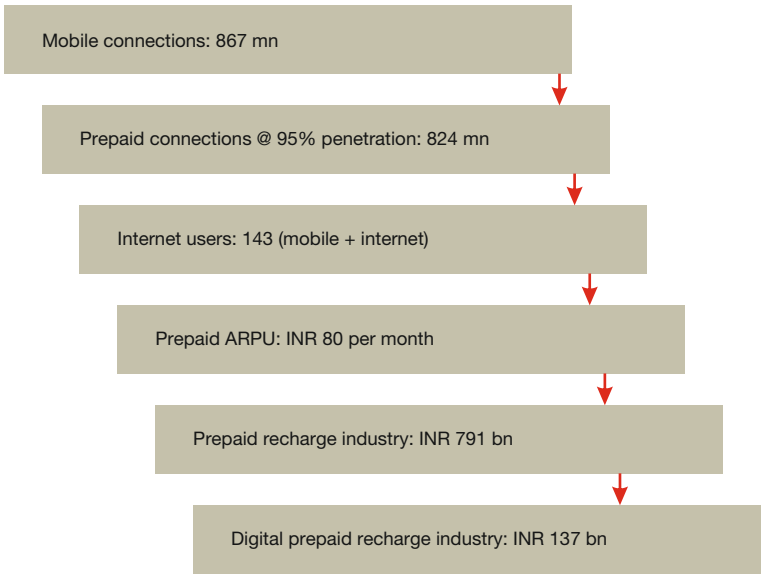
Mobile recharges and bill payments – potential to be the "killer app" for m-commerce

Mobile recharges and utility bill payments are an extension of e-payments. These are highly standardized services which people regularly avail of and constitute very low involvement transactions. Payment of electricity and water bills and re-load of prepaid mobile and DTH connections are transitioning to e-payments at a fast pace given the standardized nature of these transactions. Increasingly, mobile recharges are becoming a compelling use case for mobile Internet adoption just as IRCTC became a compelling use case for Internet adoption.

The mobile recharge industry has flourished in India on the back of the telecom revolution. Overall wireless teledensity has reached over 70% in India and private operators hold ~86% of the wireless market share. A majority of the market is driven by prepaid connections, estimated to be in excess of 95% of the overall market. However, despite Internet penetration in India hovering around 11%, only 1% of all mobile recharges of prepaid connections happen online. This presents an opportunity of significant proportion waiting to be tapped.

Online recharge can be done through three channels - through service providers' own website, through ATMs and through third party recharge players. The throughput of total prepaid recharge industry is estimated at INR 791 billion, of which the potential for digital recharges (online + mobile) is estimated at INR 137 billion. Telcos offer recharge companies approximately 3% commission, which translates into an opportunity worth over INR 4 billion today. The potential further increases in light of the Indian government's efforts to drive digitization of cable TV subscriptions, creating an opportunity for DTH recharges as well.

Figure 73 Prepaid recharge market size



Most recharge players are shifting their focus to mobile

Recharge, being largely an on-the-go activity, presents immense potential for mobile use. Most of the existing recharge players have identified this and are working on creating a mobile strategy for their business.

Paytm, launched in mid-2011, reached a million users within six months of launch. It has today grown to more than 6 million users with over 30% of them transacting on a monthly basis. Paytm has invested heavily in developing access to its services through mobile devices. It has mobile apps across platforms and a mobile optimized website. The Paytm app has been downloaded over a half a million times on Google Play and more than 40% of the company's transactions originate from a mobile device.

Another recharge player, Mobikwik claims to have 1.5 million users and also has a mobile wallet offering. Mobikwik has also demonstrated an increasing focus on its mobile website and mobile apps to drive user adoption. Mobikwik has had 150,000 app downloads in the Google Play store in the three months following the release of its upgraded app. They have also added more utilities to their offering including bill payments of electricity, insurance and gas companies.

Freecharge.in, which was one of the first mobile recharge companies, has more than 1.5 million users. The company raised financing from Sequoia Capital stating that the funding was primarily for developing its mobile offerings. Another player, JustRechargeIt, also raised funding from Ladderup in mid-2012. M-commerce company ngpay and the mobile wallet player Paymate also claim to get a significant portion of their revenues from mobile recharges and other utility bill payments.

Most of these prepaid recharge players are trying to drive transactions through their closed loop wallets. This helps them develop a large and engaged consumer base that can be leveraged to become a digital goods marketplace like 'handango' or 'Getjar' by adding categories like apps, games, softwares, tickets, digital music, e-books, value added services, etc.

Successful Mobile Internet Role Models

- Apalya :: The Early Bird Catches the Worm
- Nazara :: Go Gaming!
- Newshunt :: India's Favorite News Application
- OlaCabs :: Re-architecting Ground Transportation
- Paytm :: Everything Mobile – Payments to Commerce
- Twist Mobile :: Banking on the App Economy!
- Vserv.mobi :: Solving the Challenge of Mobile Monetization

Apalya :: The Early Bird Catches the Worm

According to Cisco – 7.4 exabytes of mobile data will be generated by video traffic globally in 2017, accounting for 66% of the total mobile data traffic and growing at a 75% CAGR between 2012 and 2017, the highest growth rate of any mobile application category. That is the massive potential of mobile video, and that is where Apalya dominates.

Rewind to 2005, the mobile landscape was markedly different. The iPhone phenomenon hadn't occurred, Nokia and Motorola were witnessing record sales, demand was for smaller mobile handsets and voice and SMS were the predominant services used. It was during that time, that the Founders had the foresight to believe that video consumption on mobile devices will grow exponentially. The idea was much ahead of its time; many couldn't fathom watching videos on such a tiny screen. But the two went ahead, developing the country's first mobile video streaming platform that was optimized for the Indian market – 2G networks + Feature phones.

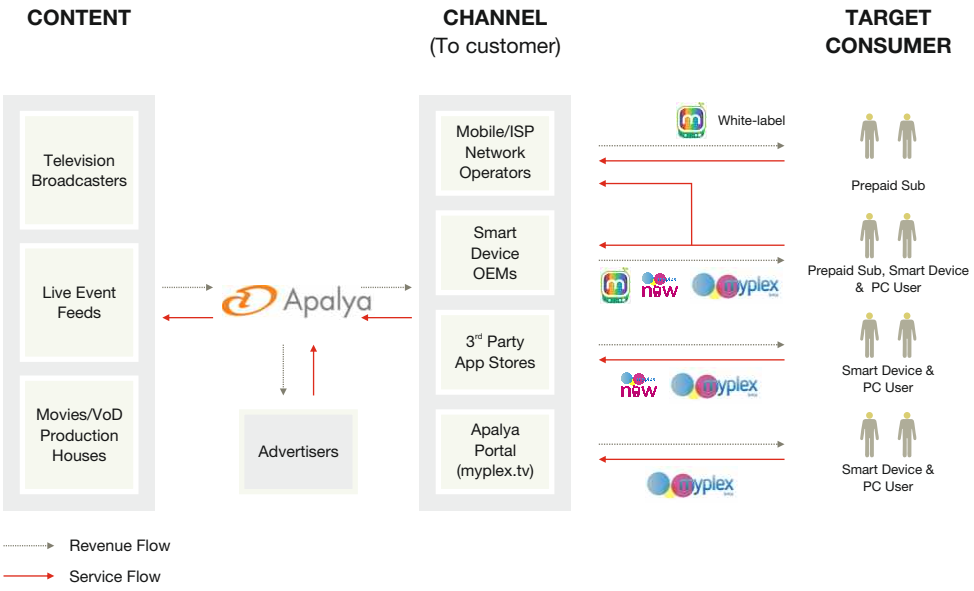
Exhibit 75 Powered by Apalya

They took the platform to mobile operators, who were riding high on the growth of VAS and to Live TV content providers who thought of mobile as an incremental channel for monetization. Both parties saw a good opportunity to generate additional revenues. Thus was born India's first "Mobile TV". Soon, Apalya had their Mobile TV platform (white-labelled, on-deck) operational on every operator deck, garnering over 95% market share. For operators, it provided higher-end VAS to customers that could generate more data traffic and higher ARPUs. Apalya's Mobile TV generates an ARPU of INR 150 – 200 for operators compared to an ARPU of INR 15 – 20 generated by other VAS players. For content providers, it offers them an additional touch point with the audience, through a 24/7 device. The company has built the largest network of content providers spanning regional, national and international media houses, offering over 200 channels across genres. Apalya contributes a significant portion to the digital revenues of each of its content partners.

The white-label Mobile TV service has achieved scale and is generating positive cashflows. Subscription revenue grew 100% y-o-y in FY2013. Till date, over 15 million customers have used Apalya's Mobile TV service, with an active customer base of 1.5 million, consuming 200+ million minutes of video annually. News and entertainment are the most watched genres of content.

The launch of the iPhone in 2007 fundamentally transformed the mobile ecosystem. The Smartphone era had begun and with it, a dramatic change in usage pattern on mobile devices. Having firmly entrenched themselves in the operator network, the team went about chalking their Direct-to-Consumer plan to target the "Smartphone User" accessing mobile internet through "Apps". The evolving market characterised by roll-out of 3G networks, falling data tariffs and dramatic growth in smartphone adoption with larger screens, gave the company an ideal opportunity to leverage their strong technology and content partnerships to build a D2C model. The video streaming platform has been enhanced to provide multi-network (2G/2.5G/3G/4G/Wi-Fi) and multi-OS support (Android, iOS, RIM, WP7, Symbian, HTML 5). Content partnerships with media houses have been extended to Movies and TV shows apart from Live TV. Two products (in beta stage) have been rolled out – Myplex Now, a Live TV Mobile App and Myplex – an online portal for movies and TV shows, a "Netflix" for India. Myplex has been designed as an OTT play on the Cloud, offering seamless cross-platform (Mobile/Tablet/PC) access to content, realizing the concept of "Anytime, Anywhere" entertainment. Movie production houses are eager to partner with Apalya as Myplex offers a solid platform to monetize content and combat piracy - the biggest threat to producers.

Exhibit 75 Apalya Business Model



While the company plans to go aggressive with the D2C model, the B2B model has also evolved with the changing times and will remain a core part of the business. Operators are donning the ISP hat and partnering with Apalya to provide seamless TV-viewing experience to customers across platforms and networks – Mobile, Dongles, IPTV. As connected TVs and Boxes become mainstream, Apalya's video streaming capabilities will be leveraged by several more players.

The company has had 3 rounds of funding, raising $20 Mn in total from IDG VI, Qualcomm, Kalaari Capital and Cisco. Cisco's recent investment is testimony to Apalya's robust tech platform and its winning go-to-market offering.

As we sit back and witness the explosion in mobile video consumption over the next 5 years, Apalya's first-mover advantage and deep domain expertise will reap attractive dividends.

Nazara :: Go gaming!

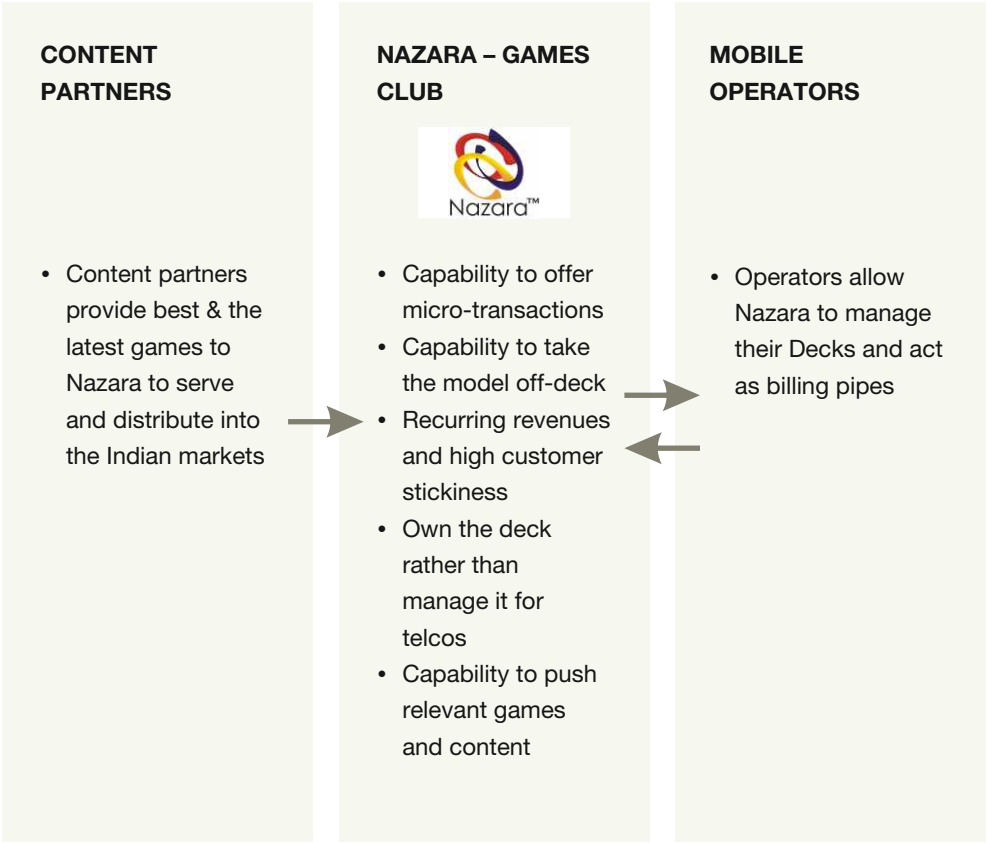
Gaming worldwide is expected to be a $83 billion industry by 2016, of which $48 billion is expected to come from online and mobile games. Gaming market in India grew at a CAGR of 49% between 2008 and 2012. Mobile gaming is the fastest growing gaming segment in India having grown at a CAGR of 61% (2008-12) and is expected to contribute ~35% of the gaming revenues in India in 2012.

Nazara Technologies has been a pioneer and industry leader in mobile gaming space and is best placed to leverage this opportunity. Backed by Westbridge Capital, Nazara is a strong team of 250 people based out of India and Dubai. Nazara served over 120 million+ subscribers with over 1.3 billion gameplays from August 2009 to March 2012.

Nazara started in the year 2000 as an online gaming company, but soon diversified onto mobile and started developing applications and SMS based games and contests. Between 2004 and 2009, Nazara forged tie-ups with all the leading telcos in India – Vodafone, Reliance, Airtel- and plugged gaps with operators to gain pan-India connectivity and billing integration. It acquired brands like Sachin, Sehwag and Vishwanathan Anand and also tied up with partners like Gameloft, Player X and Digital Chocolate.
In 2010, it entered into an exclusive tie-up with gaming major Electronic Arts (EA) for the distribution of EA's mobile catalog in India, Sri Lanka and Bangladesh. Also, as the market was evolving from VAS based model to app based model, Nazara launched its off-deck gaming portal and social gaming portal in 2010. In 2011, Nazara entered the Middle-East market. In 2012, it bagged the license to exclusively distribute EA games catalog in Middle-East and Africa and signed up with Airtel Africa to launch its gaming solutions in 17 countries in Africa.

'Games Club' – Nazara's key offering is a WAP based subscription service offering 1100+ games. It is compatible across Java, Blackberry, Symbian and Android platforms and offers multiple price plans such as- Time based (daily, weekly and monthly), Pay per play/In-game purchase, Discounts/Happy hours/Try & Buy and Free play/Ad-supported.

Exhibit 76 Nazara 'Games Club' – Business Model



Nazara has expanded its footprint across multiple verticals through the inorganic route. It acquired BuzzCity's mobile games and applications portal Djuzz and mobile social networking property MyGamma in January 2013. Back in October 2011, Nazara also incubated a social gaming firm called Playcaso.

Exhibit 77 Nazara business verticals

Nazara™	PLAYCRSO		djuzz	myGamma myWorld
Strong Foothold in India Expanding global presence Offices in Dubai & Germany	Cross Platform Developer Community across boundaries Casual & Social Games Self owned IP	India's 1st Social Gaming destination on Mobile Browser based games Highly engaging multi-genre games & apps	FREE ad supported game store 4 million monthly unique users Renowned Partners such as Adidas, Reebok, Digital Chocolate, EA	Mobile-only social network Available in 165 languages across 89 countries 4.8 million registered users

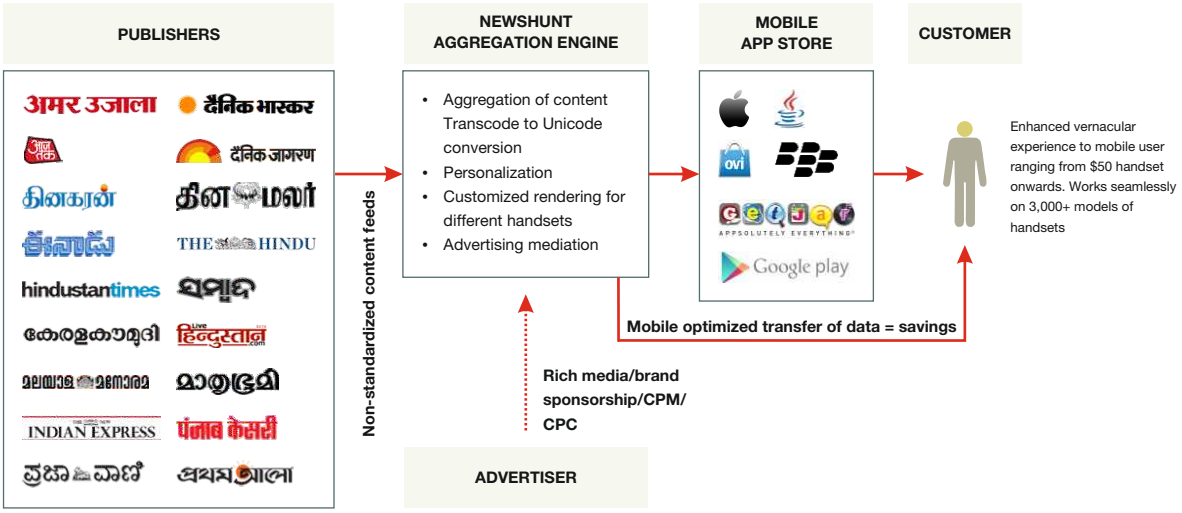
Nazara has been able to combine technology with a compelling experience to create innovative applications in the mobile environment and is surely geared to reap dividends from the burgeoning mobile gaming market. It is well positioned to be the market leader in the mobile gaming industry of emerging markets like India, Africa and Middle East.

Newshunt :: India's favorite news application

While the Indian media was going gung-ho about the local e-tailing industry, India's very own news reader and aggregator Newshunt was taking silent strides. Today, Newshunt is India's most popular mobile news application, and is the largest regional mobile publishing platform. Newshunt is the most popular Indian Mobile application, used by Indians and developed in India and won the best Publishing award at Mobile World Congress Barcelona 2013.

Exhibit 78 Powered by Newshunt

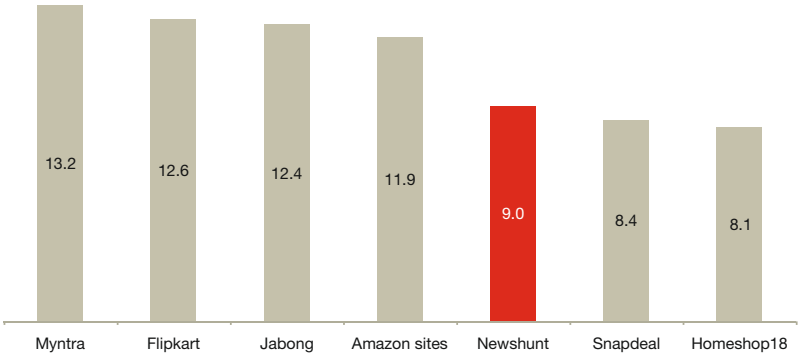
Exhibit 79 Newshunt Product model



Newshunt offers access to newspapers and magazines by aggregating content from more than 80 biggest regional publications in over 11 languages with 25,000+ daily published articles. The wide coverage of content makes it the most popular app in news category in terms of reach with 30 million installations, 9.0 million monthly active users and 800 million monthly page views. Newshunt's reach of 30 million installations is more than half of the collective reach of 58 million unique visitors amongst the top 5 e-tailers in India and its monthly active user base of 9.0 million ranks it ahead of e-tailers like Snapdeal and Homeshop18[25].

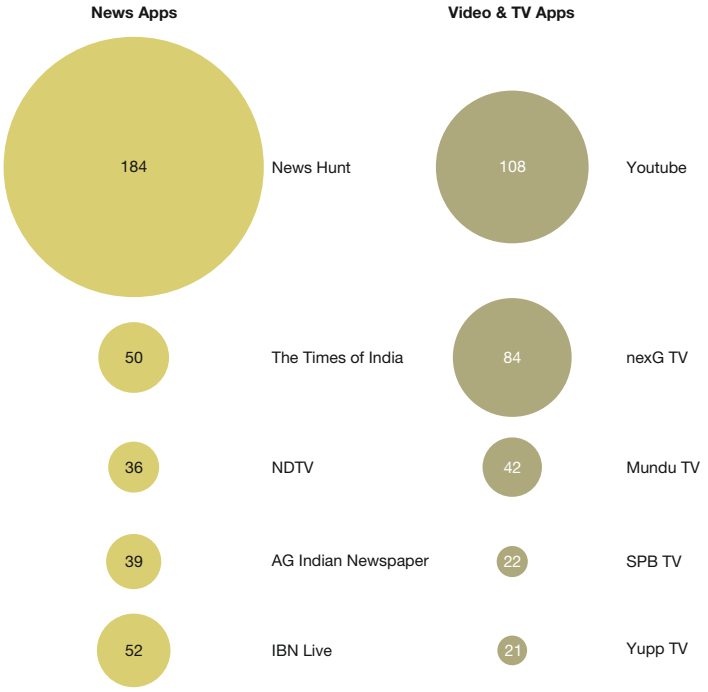
[25] http://dbgorg00d8r0p.cloudfront.net/wp-content/uploads/2013/02/eSparks-shared-presentation.pdf?9d7bd4

Exhibit 80 Monthly Active Users (mn), June 2013



As per Nielsen Informate Mobile Insights, Newshunt rated highest in terms of time spent per month amongst users.

Exhibit 81 Time spent per month amongst users (min); December 2011



Source: Nielsen Informate Mobile Insights

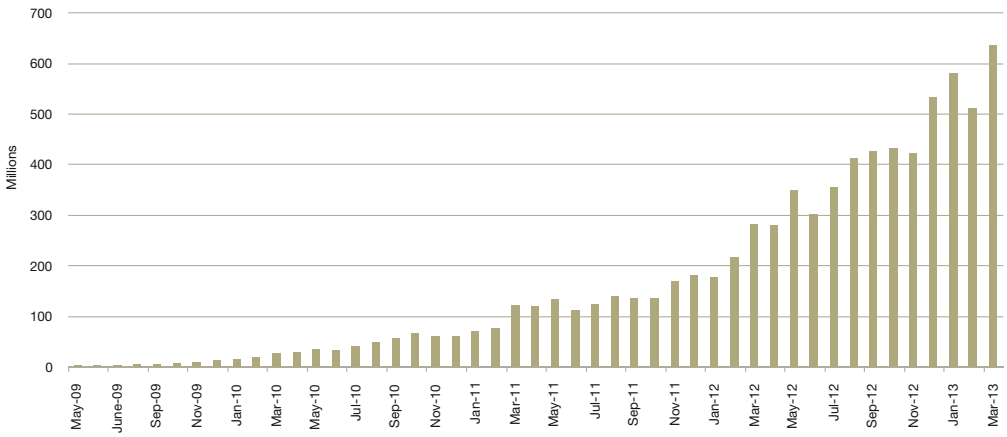
Given that Newshunt has a readership only from India so far unlike Flipboard that has readership from multiple countries, Newshunt scores pretty well in terms of both reach and engagement. While Flipboard has ~ 4 million monthly active users[26], Newshunt has 9.0 million monthly active users. As compared to Pulse (another popular news reading app globally) that has 10Mn stories read daily[27], 15 million stories are read every day on Newshunt.

[26] http://metricsmonk.com/devs/facebook/1014686-flipboard-inc-?from=appstats
[27] http://techcrunch.com/2012/10/31/pulse-10-million-stories-per-day/

Newshunt monetizes its inventory by providing advertisers with an advertising platform that provides multiple targeting options such as: location based targeting (based on city or cell tower location), newspaper or publisher specific targeting, language based targeting, handset or device based targeting and finally, operator based targeting. The advertising platform supports various ad formats such as rich media ads, expandable ads, text/ banner ads, video ads, inapp microsite, lead/ click to call, interstitial ads, etc.

Virendra Gupta, CEO and founder of Ver Se (the parent company of NewsHunt) believes that vernacular content on mobile is a large need and Newshunt's success is attributed to the fact that it managed to break the language barrier. Currently, NewsHunt is focussed on building a base of readers who want to consume vernacular content. Going forward, NewsHunt intends to offer readers a wide variety of content in regional languages in addition to news and also integrate micro transactions into NewsHunt. Under the parentage of Verse Innovation and with the strong backing from marquee investors including Matrix Partners, Franklin Templeton (Darby) and Omidyar Network, Newshunt is surely geared to become India's largest vernacular mobile reading application & platform.

Exhibit 82 Newshunt user and usage trends



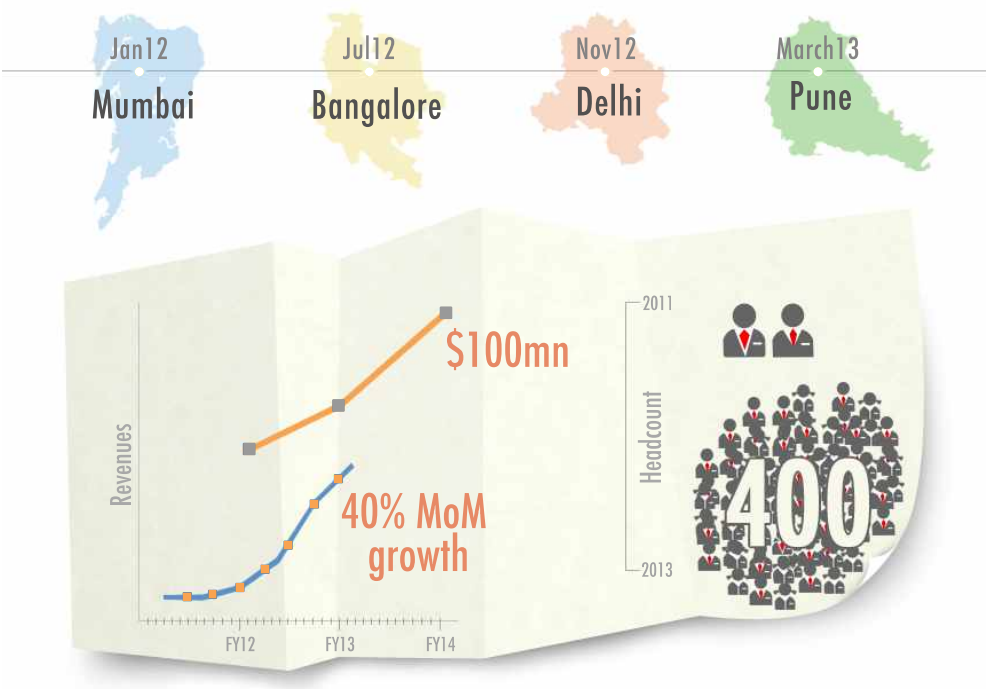
88.8%.....Male

71.2%.....Urban Town or City

63.8% Single • 90% Ages 15 - 34

OlaCabs :: Re-architecting Ground Transportation

Exhibit 83 OlaCabs Factsheet



OlaCabs, founded in January 2011 by two IIT Bombay alumni Bhavish Aggarwal and Ankit Bhati, has emerged to be India's largest aggregator of car rentals and point-to-point cab services, within just 2 years of its operations. It operates in Mumbai, Bangalore and Delhi and launched its operations in Pune early March, 2013. The company recorded a phenomenal 40% month on month growth over the last financial year and is targeting a run-rate of INR 500 cr by the end of FY14.

OlaCabs does not own or operate its own fleet, but aggregates small fleet operators and single vehicle owners. The inventory utilization among small cab operators (ownership of 1-3 cabs) in India is an abysmal 40-50%, though OlaCabs claims to increase the inventory utilization up to 70% using its platform effect[28]. OlaCabs now works with over 1500 operators and has over 5500 cabs on the Ola technology platform across Mumbai, Bangalore and Delhi, making it the largest aggregator of cabs in every city where it is present today. Ola has also successfully partnered with all four major OTAs like Goibibo, MakeMyTrip, Cleartrip and Via to provide reliable on-ground solutions like airport transfers as well as local/outstation rentals.

[28] http://www.nextbigwhat.com/olacabs-funding-2-297/

Exhibit 84 OlaCabs mobile app- a) iPhone, b) Android, c) HTML5, d) Feature phone

a b c d

Mobile strategy has been the key differentiator and game changer for OlaCabs. Its app allows one-touch cab booking and provides multiple functionalities such as- location of all available cabs close by, choice of car type, fares from ratecard, real time ETA (expected time of arrival), etc. The app allows users to store favorite locations and track or cancel the ride from the same screen. For feature phones, OlaCabs enables tracking through a combination of missed call and SMS.

Recently, the company released a new version of the app offering additional features like advance bookings, custom pickups, referral and Ola Money. Ola Money is the closed loop prepaid wallet from OlaCabs that allows customer avoid hassles of managing cash and hunting for change.

Exhibit 85 OlaCabs' mobile app – backend management: a) GPS enabled Driver app, b) the back-end tracker

a b

OlaCabs, across its four cities of operations takes over 10,000 customer calls a day. The number of bookings through its mobile app has increased by 100% quarter on quarter since August 2012 when it was launched, making it the fastest growing booking channel. The app saw upward of 2 million page visits across Android and iOS, while the web platform had over 5 million visitors in the last year.

Exhibit 86 OlaCabs - User Adoption Statistics

With the backing of an investor like Tiger Global, OlaCabs is already one of the most well-funded aggregator of car rentals. The launch and success of its mobile apps has taken customer experience on OlaCabs to a different level altogether. The founders of OlaCabs have always been cognizant of the fact that India is a mobile first economy and any business in India cannot achieve its full potential till it has found a way to target the mobile customer. OlaCabs definitely seems to have found its way out here!

Paytm :: Everything mobile – payments to commerce

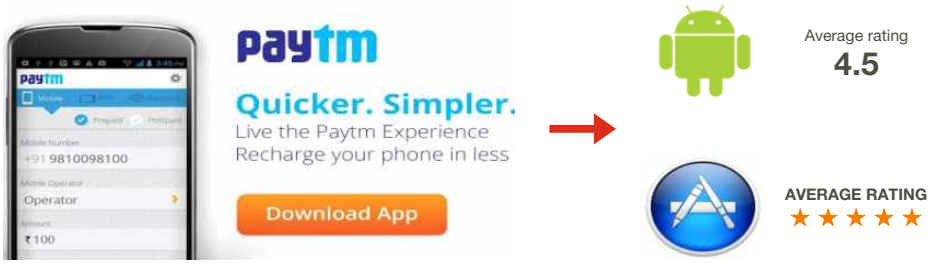
Paytm started as One97 incubation with the purpose of tapping into digital transactions opportunity. However, Harinder Takhar, CEO of Paytm, knew that transactions on internet cannot happen till there exists a robust mobile payment mechanism. With this intent, Paytm developed its payment gateway that supports credit cards, debit cards, net-banking and prepaid payment options. While Paytm's payment gateway is meant for both desktop and mobile clients, its USP for mobile clients is its high success rate for transactions, attractive pricing and extreme amount of customization according to mobile website or app. It currently has its payment gateway installed with 150 merchant partners skewed towards mobile merchants. Paytm's payment gateway processes ~150,000 transactions per day of which 40% are on mobile.

Exhibit 87 Paytm's B2C platform

When Paytm ventured into digital commerce, the company always believed that mobile internet and mobile commerce will be significant to its growth. Harinder believe that not all goods can be bought or sold on mobile. Digital goods, by their very nature, are more amenable to mobile transactions. This philosophy is apparent in the choice of verticals

present on Paytm's digital commerce platform. Paytm provides utility services such as recharges and bill pay, sells bus tickets and coupons on its digital commerce platform and has over 40 billers on its platform. The utility segment witnesses a high degree of customer repeat and hence has helped Paytm build a strong loyal customer base with 70% of its customers being loyal (i.e. doing 100% of their utility payments on Paytm). Bus ticketing was launched on Paytm in Dec, 2012 and sold 3,218 bus tickets on day 1 itself.
Mobile has played a critical role in Paytm's growth. Paytm has mobile apps across all operating systems (iOS, Android, RIM and Java) and is amongst the top rated apps on these app stores.

Exhibit 88 Paytm mobile app- app store ratings



Harinder believes that to drive transactions on mobile, consumer trust and confidence on the payment gateway is of paramount importance. Paytm's payment gateway is PCI-DSS certified and can store credit card information. This enables it to simplify the transaction process and improve transaction success rates. Another key initiative in this regard is Paytm's closed loop prepaid wallet – Paytm cash- that allows the users to make instant payments and refunds. Interestingly, 2 million of Paytm's 6 million customers use Paytm cash, signifying the importance and need for innovations in payments as one of the key enablers to drive transactions.

Twist Mobile :: Banking on the app economy!

- The global app market is at $4.1 billion in 2009; set to hit $17.5 billion by the end of 2012
- 100 million apps are being downloaded in India every month[29]
- Nokia India alone claims 48 million app downloads from its Ovi store each month
- India's app developer base is estimated at 250,000

And yet when we look at the number of Indian apps appearing in the Top 100 list of most of the app stores, less than 10% apps are from India. Virat Khutal, founder & CEO of Twist Mobile, has been trying to crack the Indian app market with his apps claiming over 124 mn cumulative downloads till date across Symbian, Android, iOS, Windows and RIM operating systems.

Founded in March 2009, Twist Mobile develops mobile apps across operating systems such as Java, Android, iOS, Windows and Blackberry RIM. Twist mobile has ~30 apps with two dominant themes being – camera related (image processing) apps and games apps. Its gaming apps can be classified under three broad categories: action games, arcade games and, adventure and puzzle games.

Exhibit 89
Mobile games from Twist
(no. of downloads - in Mn)

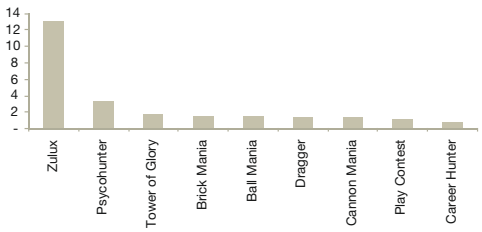
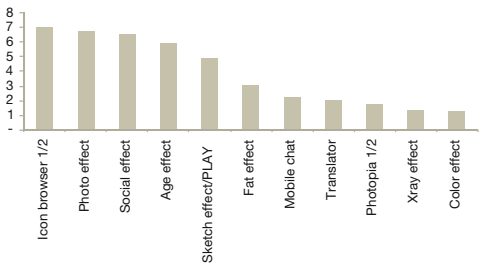


Exhibit 90
Other mobile applications from Twist
(no. of downloads - in Mn)



The decision to go free or freemium was motivated by initial experiments with Twist's first app – Age Effect. Under the free category, the app had 1 million downloads in just 6 weeks while the paid category showed only modest downloads.
While most of the apps are free apps and are monetized through in-app advertising, some

[29] http://betatest.businessworld.in/businessworld/businessworld/content/App-App-And-Away.html?hopping=1

of the apps are also freemium and leverage in-app purchases for monetization. It has tied-up with Vserv for in-app advertising while in-app purchases are done through Nokia Ovi store's direct operator billing model.

Twist found its big opportunity in serving the featurephone user living beyond the metros. Virat believes that mobile subscribers in the hinterlands of emerging markets are more active users of mobile internet/ data to meet their needs of access. Most of the app downloads for Twist are on Nokia handsets with users aged 18-24 years.

The reach of the apps in India is highlighted by the following incident: Twist was running a contest as part of one of its apps. When it came to sending the prizes to the winner, the company approached DTDC (having coverage of over 10,000 pin-codes in India), only to realize that DTDC doesn't deliver to the winner's address. On customer's willingness to pay for user experience in apps, Virat mentioned that during one of the experiments they did, they realized that 5% of their customers were willing to pay upto Rs 30 per month to remove apps.

Hence, while the demand is clearly there, the supply of good quality Indian apps providing user experience comparable to global apps seems to be the gating factor. Virat believes that the ecosystem has not been keeping pace. Lack of quality developers is one of the key constraining factors. Secondly, connectivity issues hamper user experience. Twist for example has not launched any multi-player games yet, because they believe the connectivity in most parts of the country isn't good enough to support a good user experience.

Despite these challenges, Twist has managed to develop apps that have seen traction in countries even beyond India and is the first developer on Nokia Ovi in South-east Asia to cross 20 million downloads. Virat says that the success is attributed to their understanding of geographic tastes – they customise the look and feel of apps for different geographies to the extent of varying colours to match local preferences.

Exhibit 91 Geographical split of downloads for other mobile applications from Twist (in Mn)

With the recent round of funding from Matrix, Virat believes he can take Twist to the next level of growth and create the long awaited story of Indian mobile app taking the world by storm.

Vserv.mobi :: Solving the challenge of mobile monetization

As the industry was transitioning from mobile VAS to mobile app based models, questions were increasingly asked on the monetization potential of mobile app based models. Vserv.mobi originated from the idea of finding a solution to monetization challenges of mobile app based models.

Founded in 2010 and headquartered in Mumbai, Vserv.mobi has delivered mobile advertising for leading Fortune 500 brands & digital media companies, in over 150 countries. Vserv.mobi found its niche in the emerging market mobile opportunity and gained from the first mover advantage in the space. The company enables developers of mobile apps / games and mobile site publishers to monetize their work through a 'developer first approach and philosophy' in emerging markets. At the same time, advertisers use these apps and games as an effective vehicle to reach target customers.

In the last 3 years, Vserv.mobi has grown from two founders to a strong global base of 120+ employees. Today, the company has a global business, with offices across Mumbai, Delhi, London, Singapore, Kuala Lumpur, Jakarta, San Francisco , Capetown & Ho Chi Minh City. Vserv.mobi is the only Ad Network with App media across smart phones , smarter feature phones and tablets, thus providing advertisers unparalleled reach and engagement. Over its formative growth years, the company has successfully managed to break through the competition clutter, through its two flagship technologies - AppWrapper and AudiencePro.

1 Vserv's AppWrapper helps in facilitating comprehensive monetization of apps, which includes both advertising as well as micro-transactions. Its pioneering technology powers One Click App monetization for 20,000+ Apps across platforms.

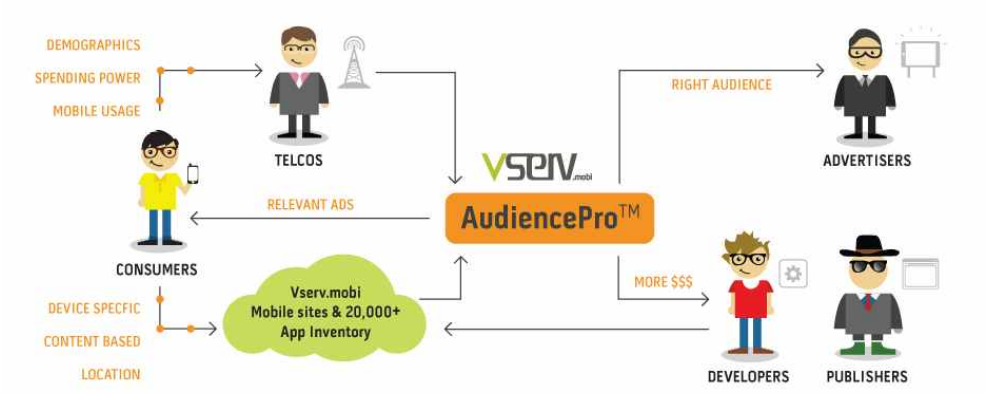
Exhibit 92 AppWrapper – World's SIMPLEST App Monetization Platform

a Advertising revenue – Vserv partners with app developers and publishers to serve ads on their inventory. Advertisers looking to reach users on mobile, pay Vserv for showing targeted ads on these Apps and Vserv in turn shares 60% of this revenue with the developers and publishers on whose mobile properties these ads are served.

b. Micro-transactions revenue – Developer uses AppWrapper to enable multiple types of pricing models and can plug in his choice of billing connectivity pipes (e.g. app store billing, direct telco billing, etc.). Users do micro-transactions on the app - such as Pay per Play/Daily Subscription, and the developer pays Vserv a revenue share on EUP (End User Price).

2 Vserv's other game changing platform, AudiencePro, allows deep targeting based on combination of demographics, spending power and mobile usage data from telcos and location, content relevance & device specific data from the Vserv.mobi network, to allow advertisers to reach exactly the audience they want.

Exhibit 93 AudiencePro Platform business model



With these pioneering technologies, Vserv has helped build several success stories in the emerging mobile app space and in turn achieved significant scale:

- Vserv has scaled its revenue run-rate 10x over the past year
  - Over 65% of its revenues are generated from international (SEA , MEA , LATAM, Europe & US) markets
- As of March 2013, Vserv managed over 31 billion ad requests per month, up from 15 billion ad requests per month in March 2012
  - The number of ad requests managed by Vserv per month is more than the total number of tweets per month globally
- Key developer & publisher tie-ups: Global Developers like EA, Disney, Digital Chocolate, Glu Mobile, Jump Games, Jollybox, Tequila Mobile, Hyperkani, Twist Mobile, HeroCraft. Indian Publishers like Hindu, India Today, Mid-Day, Jagran, Sony TV, Indian Express. South East Asia partners inlcude Detik, Kapanlagi, Kompass, TMI etc
- Key advertisers: Global Advertisers like Unilever, Google, Yahoo!, Samsung, Nokia, General Motors, Buffalo Studios, King.com, Expedia, Opera. Top Brands in India like Nestle, HUL Airtel, Ford, Cadburys, Titan, Microsoft, Ebay, General Motors, Toyota, Maruti, Aircel. Top Brands in South East Asia such as Addidas, Shell, Nokia, Gameloft, Telekomcell, Skyscanner, Sunsilk, Dove etc
- Key agency partners globally including India and SEA: Amobee, M&C Saatchi, DSNR, Fetch, Yodel, Carat, Group M, Mediacom, Pocket Media, Integral, Starcom, ad2c, Interactive Avenues, Omnicom Media Group, Reprise Media, Ignitee, Interface,

Mindshare, Isobar etc

- Telcos like Vodafone and Airtel have partnered with Vserv for AppWrapper and AudiencePro respectively

As the mobile ecosystem evolves in emerging markets, Vserv.mobi will contribute significantly to solving the monetization challenges of App based models and shows significant growth potential.

Conclusion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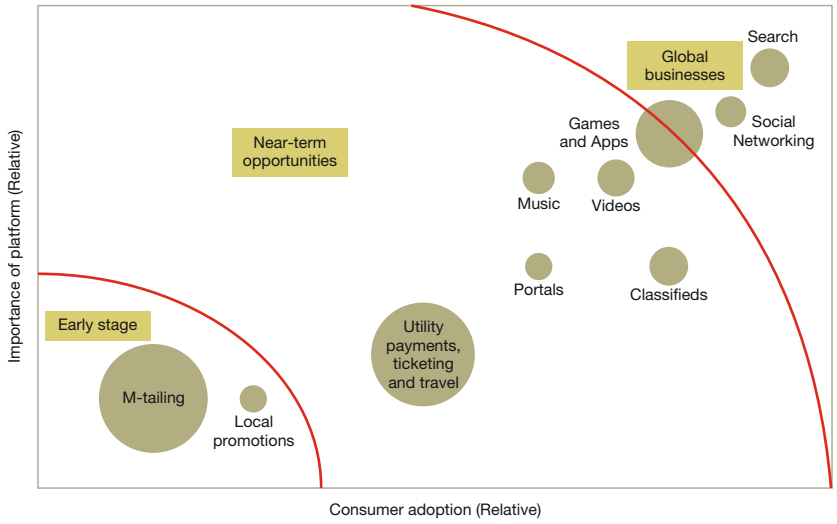
While there is interest across several segments of the mobile Internet opportunity, not all of them hold equal opportunities for Indian players, and not all of them are expected to ripen at the same point in time. To compete in global markets (search, social networking, etc), Indian players would have to become world-beaters in these areas. While this cannot be ruled out in the long run, the Indian market has historically followed developed markets in its evolution. This has resulted in global leaders invariably having a head start in those areas. Indian companies have therefore had to look for niches such as the capability to service the feature phone market, which global players choose to not focus on.

In local businesses, where the need for local presence is immensely important, Indian players stand a much better chance of success. And similar to most digital businesses, those who get it right early have a chance to dominate the markets they operate in.

While entrepreneurial and investor interest are of high importance and are inter-linked, consumer adoption is the final litmus test for a business model. It shows how far the business model is from the explosive growth digital businesses demonstrate when they hit critical mass. We have plotted different business models against two key parameters, importance of the platform and current consumer adoption, to highlight the realistic near-term opportunities available to Indian businesses.

Exhibit 96 Where are the real opportunities?



* Bubble sizes represent the relative size of the opportunities in 2016

There are several near-term opportunities in segments including games and apps, music, videos, portals, classifieds, utility payments, ticketing and travel. While search and social networking have seen significant traction, they remain the bastion of global technology companies. M-tailing and local promotions present large opportunities for local players, but are early in their evolution at this stage.

In areas like m-tailing, local promotions, ticketing and travel, where digital might is an important success factor, mobile is likely to be at the center of the next set of turf wars fought among established players. Even here, there is potential for newer players to

surprise established ones if they can reinvent the business models around SoLoMo solutions. Disruptions across established business models (by leveraging mobile Internet) look more possible than ever. The only choice businesses have is to either embrace the mobile revolution or risk getting marginalized by it.

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