2009

THE UNTAPPED MOBILE DATA OPPORTUNITY

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Executive Summary

The last two years in the global mobile market have been truly sensational. Over 1 billion new subscriptions added, over 2 billion new devices sold, and over $300 billion in mobile data revenues.[1] The number of new iconic devices each quarter is on the rise, the consumer engagement is at an all time high and the new startups and entrepreneurs are brimming with ideas and new products. Devices like the iPhone, Storm, Hero, INQ[1], Mytouch, Cliq, Droid, N97 and others have captured the imagination of the media like never before. The smartphones or the integrated devices now account for approximately 9% of the global market.[2] However, what's often lost in the smartphone euphoria is the remaining 91% of the market and the significant opportunity of data-enabling these customers.

Operators who have focused on data services as their core service have benefited with high data Average Revenue Per User (ARPU). As we quickly transition into the hyper growth phase of mobile data services, players who are designing affordable devices and services with "mobile data" in mind are the ones who will benefit from a higher uptick in adoption and sustainable consumer loyalty. However, as operators have migrated from 2G to 3G, many have missed an opportunity to customize or introduce new services that take advantage of devices being mobile, interactive, and always available.

Traditionally, there has been a big gulf between the functionality of featurephones and the smartphones; however, there is an emerging category of devices that will provide the functionality of a smartphone for the price of a feature phone. Though the average selling price or the ASP of the smartphone has been dropping, the price is still high for a significant majority of the global subscriber base. Consumers who are looking for a sub $50 device still want to the access applications such as Facebook, Twitter, Google search, and make VoIP calls, etc.

In this paper, we will look at the opportunity to attract the 91% of the global user base into the mobile data ecosystem. We will quantify the opportunity, examine what this opportunity means to the mobile value chain specifically to the mobile operators and discuss the success factors to accelerate the migration of non-active data users into the data realm.

[1] Source: Global Wireless Data Update, 2007-2009, Chetan Sharma Consulting

[2] As of EOY 2009, Source: Chetan Sharma Consulting

Global Mobile Trends

In 2009, the global mobile market grew 14% to add approximately 550 million new subscriptions and cross the 4.5 billion mark. In the next five years, the global market will add another 1.7 billion subscriptions with India and China adding 27% of them. Another inescapable trend is the shift from voice to data services with over 20% of the global service revenues now coming from the mobile data services. For some of the operators like NTT DoCoMo and KDDI, the data contribution is already touching the 50% mark.

The top three countries in terms of subscribers are China, India, and the US respectively. In terms of mobile data service revenues, US leads Japan and China respectively by a good margin. Mobile messaging (TXT and MMS) still dominates the revenue pie though non-SMS services and applications have started to make serious inroads in the data revenue stream with Japan, Korea, and the US all generating in access of 50% of their revenue from such offerings.

Over the last 2-3 years, consumption of digital media has evolved significantly. As content is becoming more digital, as devices are becoming more powerful and able, and as the consumers are becoming dependent of mobile devices for their media and communications needs, the wireless phone is playing an important role in how digital media is consumed around the world. The digital rush has helped make mobile a $1.1 trillion industry.[3] As the demand for mobile content consumption increases, service providers are being rushed to enhance their infrastructure and keep up with the explosion of content and consumer interest.

The main drivers for increased activity on the mobile devices are three-fold: better networks in the form of 3G (and future upgrades of 4G+), higher processing power devices being available for mass-market prices around the world, and consumers are not only consuming but also producing content at an exponential pace. As such, the mobile ecosystem has evolved from the early days of ringtones and graphics into more rich content experiences such as high-fidelity and multi-user mobile games, very high quality broadcast video, and social networking applications like Facebook and Twitter.

Additionally, the smartphone boom that followed the introduction of iPhone in 2007 clearly changed the dynamics of the market and how consumers view their mobile devices. It is interesting to note that on such integrated devices, consumers only spend less than 20% of their time on voice; rest is on other applications and services. Such a shift is also changing the service provider business models and how they run their operation and plan for future growth. Mobile media and data services are the dominant driver for growth as voice revenues decline. Significant mobile data usage is also putting strain on the operator's network and as such they are forced to come up with the data expansion (like 3.5/4G) and alternate (e.g. Wi-Fi/Femtocell) strategies so that they can profitably stay ahead of the curve.

While the opportunities to exploit mobile media remain strong, the ecosystem needs to worry about meeting the expectations of the consumers. They have to invest in infrastructure, developer ecosystem, integrate popular applications and services, and continuous flow of new and improved handsets to keep up with the growing interest. It is clear that as the digital media consumption grows; mobile will be at the front and center of this evolution.

[3] Source: As of 2008, Global Wireless Data Update, Sep 2009, Chetan Sharma Consulting

Data as a Driver for Higher ARPU

As is clear from the discussion before, mobile data is the primary growth driver to increase the overall revenues for the operators even though voice still represents a significant portion of the overall ARPU. If we look at the leading mobile operators around the world (figure 1), the ones with strong mobile data programs and initiatives tend to have the highest data ARPU and overall ARPU.

In Asia, NTT DoCoMo and KDDI have over $23 in data ARPU which represents over 42% of their overall ARPU. Similarly, in Europe, for 3 UK and 3 Sweden, the data ARPU in Q2 2009 was approximately $17 and $20 respectively contributing 35% and 41% respectively to the overall ARPU. In North America, AT&T, Verizon Wireless, and Sprint Nextel have been leading the mobile data transition with approximately $16 in data ARPU (as of Q3 2009) representing roughly 30% of the overall revenues.

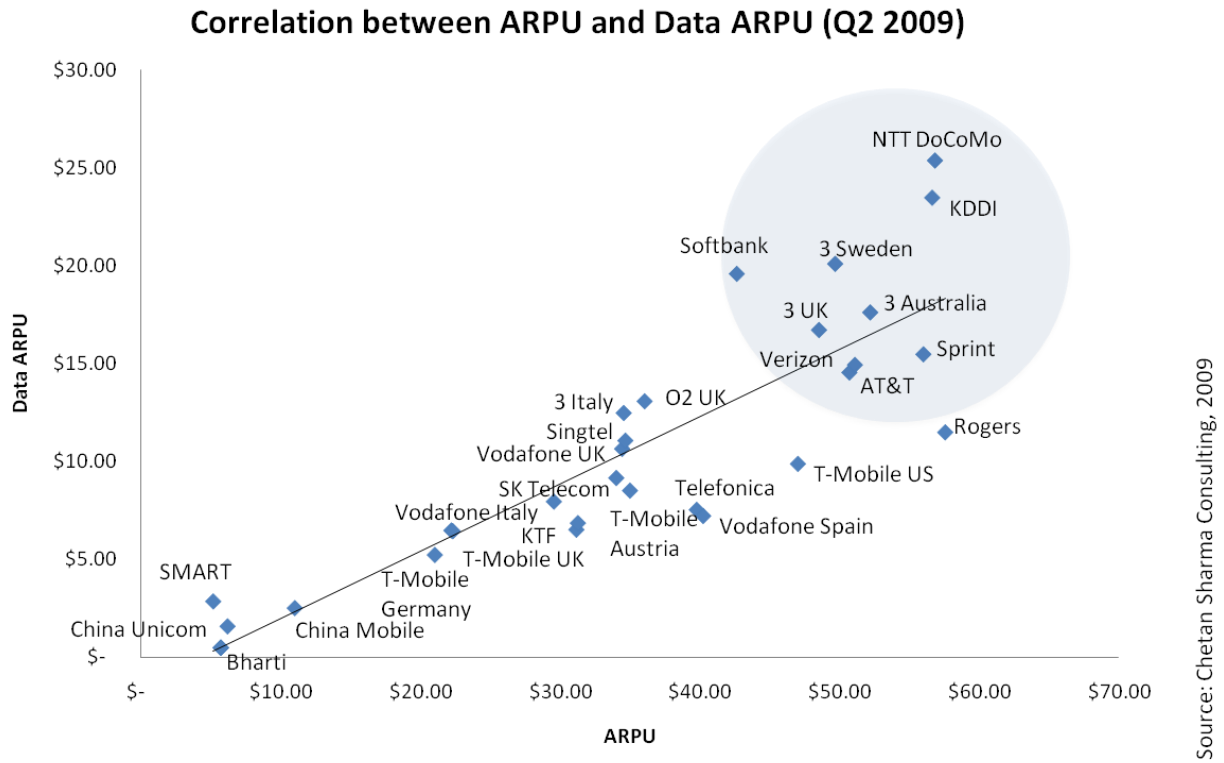

Figure 1. Correlation between Data ARPU and ARPU for major global carriers

As indicated earlier, 3G played a prominent role in increasing the data usage for operators with high data ARPU. It is also apparent that operators who have consciously focused on mobile data services and applications have benefited the most with highest revenues.

However, more needs to be done to take the industry and revenues to the next level. While iPhone and Blackberry have demonstrated the success of data services focused devices, they have generally catered towards either specific apps or specific demographics. Many carriers have to often rely on "big" subsidies to make these devices affordable and, then, hope to recoup the "subsidy costs" during the two year contract cycle. This however, keeps a big segment of the

user-base that is attracted by the device capabilities but are hesitant to pay high monthly data fees.

The Smartphone Evolution

During the past twelve months, hardly a month went by without an announcement of a new smartphone being introduced in the market. Each carrier is eager to work with the leading OEMs to bring something different and compelling to the market to differentiate and hopefully benefit from the subsequent adoption.

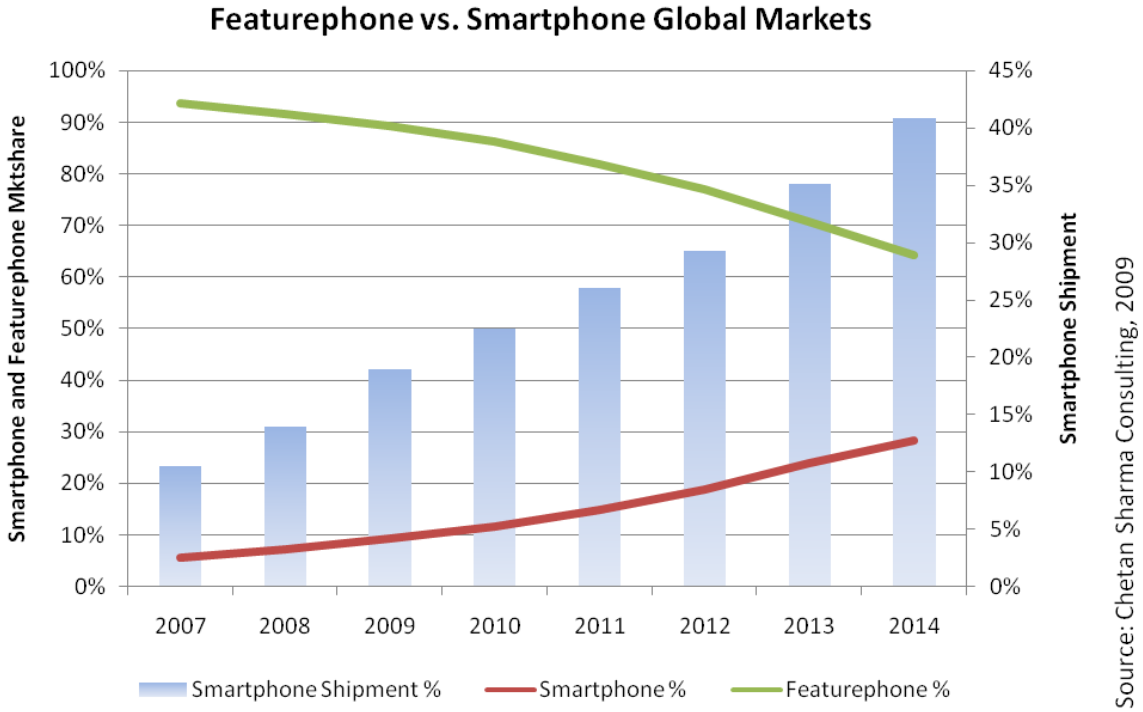

Figure 2. Featurephone vs. Smartphone global markets

In fact, during the peak of the 2007-2009 recession in Q1 2009, when the overall device shipments were down by 8.6%, smartphone sales increased by 12.7%.[4] In 2009, smartphones are expected to be approximately 19% of the global device shipments for the year (figure 2).[5] Such devices have had a direct impact on the revenues being generated for the operators. For e.g. AT&T reported in its Q2 2009 results that the integrated devices (or smartphones) typically have 1.8 times the ARPU compared to the non-integrated device population.[6] With such seemingly attractive value-proposition, it is not a surprise that this device category is getting so much attention.

However, on a global scale, smartphones are more of a localized phenomenon occurring mostly in North America, Western Europe, Japan, and Korea. In the rest of the world, the majority isn't exactly clamoring for one or can't afford the combination of a smartphone and the high price tag

[4] Source: Gartner http://www.gartner.com/it/page.jsp?id=985912
[5] Source: Chetan Sharma Consulting, 2009
[6] Source: AT&T Q2 2009 Financial Earnings, July 2009
http://www.att.com/Investor/Financial/Earning_Info/docs/2Q_09_IB_FINAL.pdf

on the data plan. This leaves an opening to introduce a set of devices coupled with lower data plans to provide a better featurephone value proposition to the broader mobile ecosystem.

Defining the Untapped Mobile Data Opportunity

Figure 2 shows the global penetration of smartphone and featurephones. At the end of 2009, the yearly share of smartphones is expected to be a healthy 19% (i.e. the share of the total devices sold in a year) but the actual smartphone penetration is going be only around 9%. In fact, it won't reach 19% for another 3 years. This indicates a slower migration of consumers to smartphones on a global basis. While this transition is a bit quicker in North America and Western Europe, the price barrier of $150-$200 device is still high for many consumers to take the leap.

Since voice revenues have been under pressure for some time, data remains the most reliable growth opportunity for the operators. It should be noted that while over 70-80% of the smartphone users subscribe to the data plans and services, fewer than 5-10% of the featurephone users have typically embraced non-SMS data services.[7]

So, should operators just wait for the 90%+ of the mobile consumers to switch over to the smartphones or can they introduce new products integrated with the compelling services and the pricing plans to tap into the massive sleeping opportunity that most have overlooked thus far.

If we take a look at the average selling price or the ASP of the two device categories, the ASP for both the smartphones and the featurephones have been on decline, however, the ratio of the two is on the rise, meaning that the price of the featurephones is dropping faster than that of the smartphones. As such, for the price-conscious population, featurephone will remain a more attractive option.

As shown in figure 3, over the course of next five years, smartphone ASP will drop below $200 while the featurephone ASP will be below $50. The understanding of the relative pricing is important especially in the unsubsidized markets which represent the majority of the global subscriber base. Thus, there is an opportunity for a set of new devices tightly integrated with compelling data services and applications that provide consumers flexibility in pricing to help draw out the non-data users on featurephones to become active data users.

Quantifying the Opportunity

Figure 4 shows the percentage of the smartphone vs. featurephone users who ARE NOT active data users (non-SMS usage), meaning that they don't browse, twitter, facebook, download applications or check email on their devices. In 2008, there were over 3.3 billion featurephone users who were NOT data users while the similar demographics in the smartphone category was only 0.074 billion. While some of the featurephone users will eventually upgrade to smartphones and become active data users thus boosting carrier's revenue base, the bigger opportunity seems to be in getting the existing featurephone users to use data services. In fact, there seems to be a healthy untapped market in the middle that enmeshes functionality of a smartphone with the device and data plan price points and margins of a featurephone. And the base of such users is large enough to more than make up for any drop in ARPU from the smartphone category.

[7] Source: Chetan Sharma Consulting, 2009

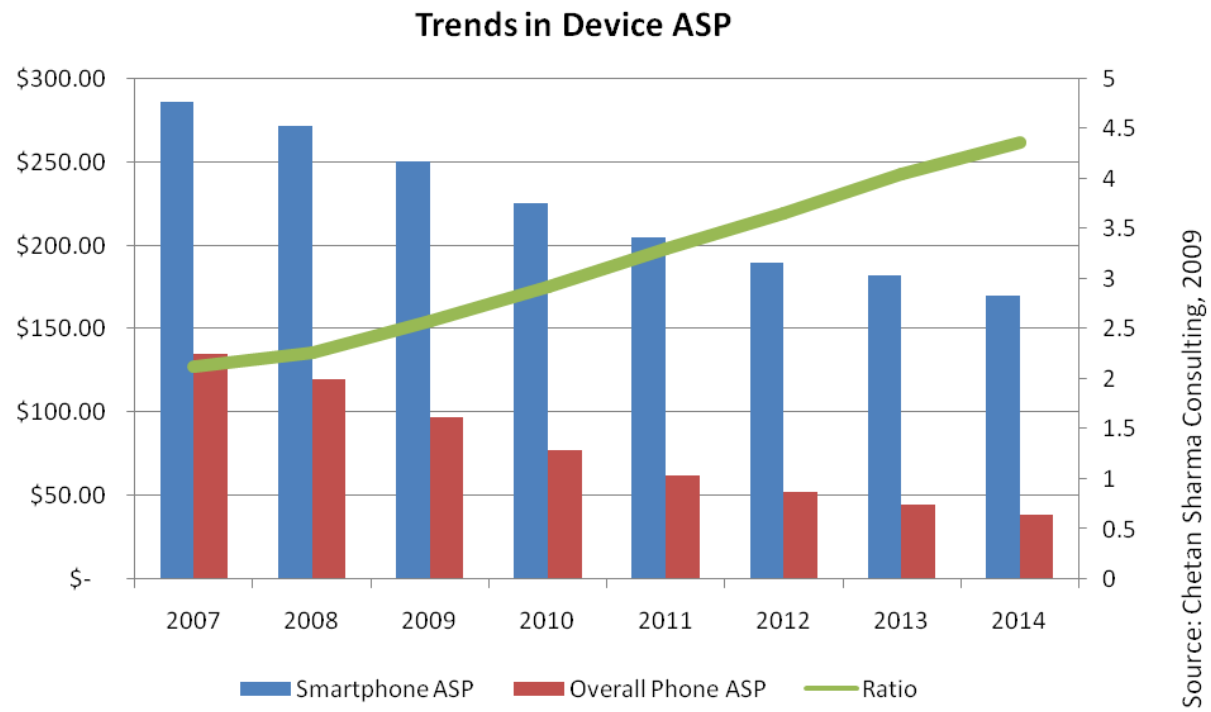

Figure 3. Trends in device average selling price

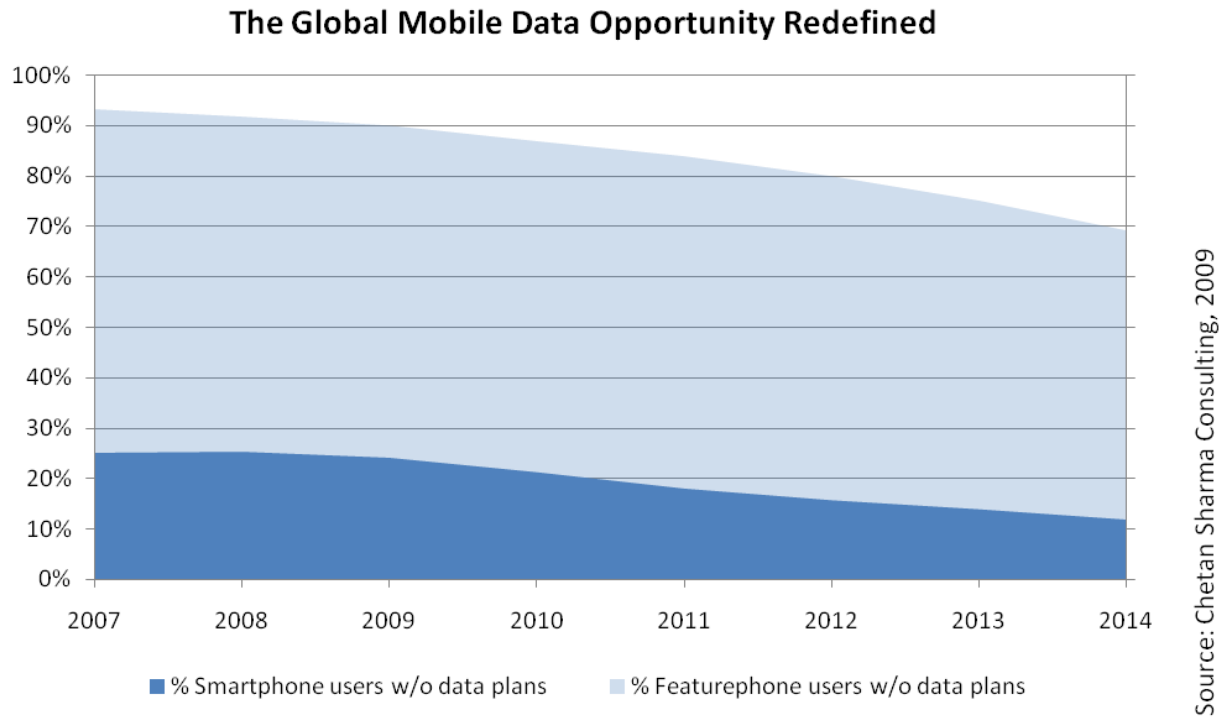

Figure 4. The global mobile data opportunity redefined

The total addressable market (TAM) for mobile data on featurephones is going to be over 3.6 billion by the end of 2009 with China and India leading the way at 27% (combined) followed by

Rest of Asia-Pacific (also excluding Japan) at 18%. Western Europe, Eastern Europe, and South America each will represent 11% of the opportunity. Even in North America which has been growing its smartphone base rapidly, over 200 million featurephone users will be without any significant mobile data activity and thus represents a big market opportunity considering the higher and stabler ARPU levels compared to other markets. This TAM represents over 80% of the total global subscriber base.

2G to 3G migration

iPhone has clearly been an iconic device for promoting mobile data. The full-browser, the appstore, the user experience have all helped consumers to engage with more content and services and spend more thus boosting the data revenue per iPhone subscriber. Android based devices have had the same effect. Blackberry's laser focus on mobile email has helped RIM become a strong player in the mobile device space. Apart from these examples, there aren't that many case studies, where devices were designed with "mobile data" in mind.

The industry has essentially applied 2G voice thinking to 3G data services. Yes, 3G helps in moving things faster and enhances the user experience but from the device perspective, devices haven't really been designed or created to take advantage of how consumers consume media across various channels and make the mobile device a more meaningful companion in their day-to-day lives. As such, for many operators, the billions of dollars of investment in 3G hasn't really translated into billions in revenue. The lack of new services that are designed specifically for mobile has given many consumers no strong reason to spend more.

For example, the same "PC mentality" of opening up each application one at a time has carried forward on a majority of the mobile devices in the market today. Very few user experiences have been built that coorelate the user's context to user's content and bring together the relevant information from the user's universe in a time and data efficient manner. Why force the user to launch an application to see if something has been updated or the status has changed. The specific elements of each of the important applications should bubble-up on an as-needed or on-demand basis.

Similarly, if commonly used applications like Facebook, Twitter, Skype, Myspace, Yahoo messenger, Google search, MSN, etc. are more tightly integrated with the device, it will have a direct impact on the usage and thus, in turn, on the revenues. Consumers are more interested in the applications and services that improve their daily lives vs. paying more for bandwidth.

Analyzing the Opportunity

The profit or margin equation for an operator is pretty simple. The cost side (figure 5) of the equation consists of:

1. Customer aquitision cost which includes marketing, sales, and other promotion related expenses
2. Network cost which includes the infrastructure cost of deploying and operating the wireless network including radio, backhaul, controller, transport, and packet network
3. Support cost which includes support, churn, and operational cost
4. Subsidy which is the discount that carriers typically give on a device to attract consumers to sign-up for a 1-2 year contract

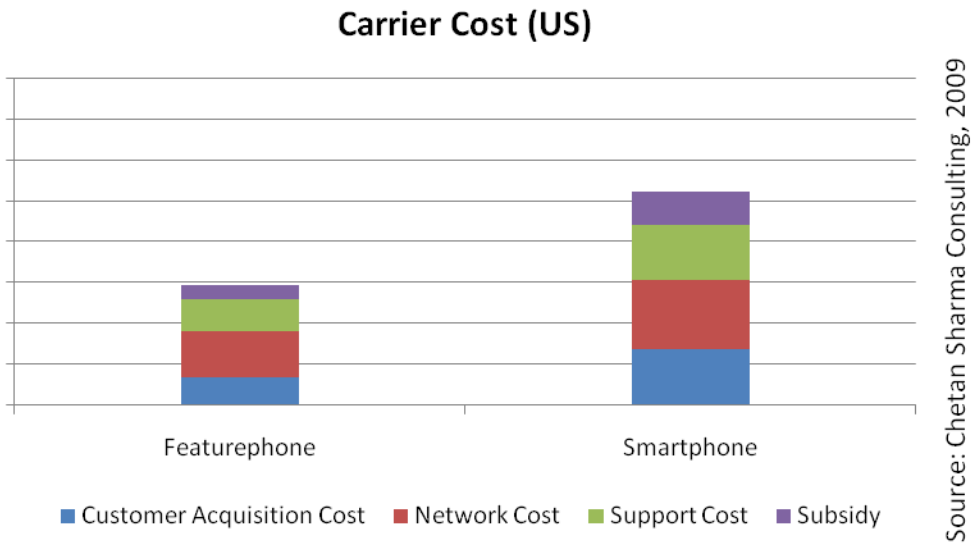

Figure 5. Carrier Cost breakup

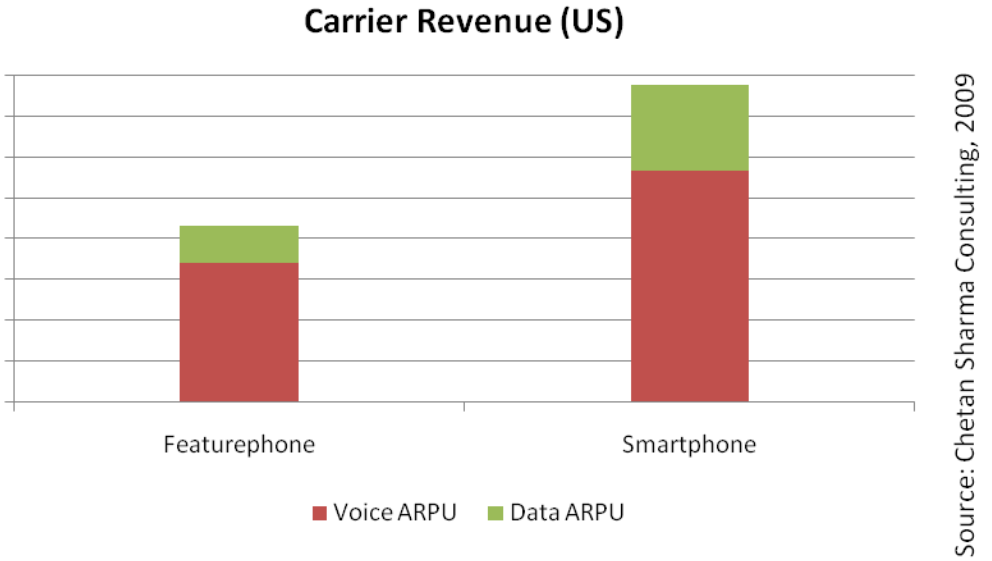

Figure 6. Carrier Revenue breakup

On the revenue side (figure 6), we have:

1. Voice related revenue and
2. Data related revenue including messaging

The cost and revenue are represented in figures 5 and 6 (drawn to same y axis scale). It is interesting to note that the net margins for the operator on the two category of devices is almost identical at approximately 32%. While smartphones help generate 1.5-2 times the monthly revenue than their primordial cousins - the featurephones, the higher monthly costs negate the margin advantage. The support costs are high because of the increasing number of applications and the higher level of complexity on smartphones, the network costs are higher as the bandwidth consumption on smartphones is 5-10 times higher compared to the featurephones. The subsidy is 2-3 times higher because consumers don't want to pay $600 for an iPhone (of

course, this cost is limited to the subsidy-friendly markets like the US). The customer acquistion costs are higher due to the higher expense of marketing to promote the next "hit" smartphone.

On the revenue side, due to better user experience, larger display, and the availability of plethora of applications and services, consumers are more likely to subscribe to higher-priced data plans and use more data services in general besides messaging. Hence, data ARPU is higher for smartphones than for featurephones but both are experiencing growth. Voice ARPU is declining for both segments though smartphones generally attract the demographics that both a) have the need to talk more and b) are willing to pay higher fees for the same.

Clearly, if an operator can attract featurephone users by introducing handsets and data services with compelling user experiences and price points, the rewards will be an enormous boost to the bottomline. Specifically, if the total customer costs can be kept in check by lower subsidy and customer support costs[8] while buttressing the ARPU, the margins will improve.

So, in addition to looking for the featurephone users to migrate to smartphones, carriers can enhance their overall data strategy by introducing new devices and services that address the concerns and needs of the vast global featurephone population. This will also buffer them from the impact of the smartphone saturation.[9]

Essential Ingredients of a Successful Strategy

As indicated earlier in this paper, there is an opportunity to bring in the functionality of smartphones onto the featurephones. The key ingredients of such an approach will involve strategies that will address the following:

a) **User Experience** - First and foremost, without an intutive user experience, nothing else matters. By minimizing the number of clicks and by making the service platform software upgradable that provides consumers choice and flexibilty without compromising on the user experience creates loyal customers and sticky services. For example, instead of forcing users to load different applications to glean bits of information, if, such information can be pushed in real-time to the idle screen of the device, it can not only improve "time to task" measurements but will also consume significantly less amount of network bandwidth.

b) **Segmentation** - Segment the user base and design specific featurephones to attract a given demographic. For example, for social networking addicts, if the Facebook application is tightly integrated with the device, it will not only consume less data than the smartphone for the same application but will also help to increase the "communication" volume using various channels (talk, messaging, email) thus impacting the bottomline. Such a focus has allowed INQ[1] to become the most socially active device in the UK.[10]

c) **Broadband** - Higher speed decreases latency and encourages users to do more, especially in an always-on environment. If the access to information is quick, users are likely to communicate more often across all channels. Several measurements have shown that mobile Facebook users are more active than their online counterparts. It should also be noted that

[8] Network costs will be lower than smartphones due to less number of pixels/bytes being transmitted

[9] It is not that the price of a smartphone alone is a concern for many users; it is the combination of the data price plan along with the cost of the smartphone that makes it unaffordable to many. So, even if the smartphone prices fall below $100, the high cost of unlimited data on such devices is a non-starter in many markets.

[10] http://bit.ly/1PBx4G

the lack of broadband coverage shouldn't degrade the user experience but the device and services should adapt to such changes in real-time.

d) **Subsidy** - The subsidy on such devices should be lower due the lower cost of the components, the overall cost of these mid-tier devices will be in the $100-200 or less range and with equivalent (to featurephone) subsidy, they can be offered for $0-50 to the consumer. This also increases the operator margin.

e) **Support costs** - The support costs of such devices will be lower since these are application focused and demographics targetted devices, the learning curve will be quicker and hence the support costs will be more in line with the regular featurephones.

f) **Branding** - Three years ago Apple didn't have a role in the mobile ecosystem. Since then, bolstered by its terrific brand, Apple has redefined the space in many ways. This clearly shows that there is a significant opportunity for the operators, the OEMs, and the content and application providers to create new and sticky brands that can identify themselves with the user experience and the applications that consumers use on a day-to-day basis.

g) **Pricing** - For a good marjority of the 3.3 billion subscriptions represented in this untapped opportunity, price of data services is a barrier, so, unless the pricing plans provide complete flexibilty and are attractive enough to indulge, engage, and benefit, consumes will just shun data services available on such devices. While they might be attracted by the device, the opportunity of moving them into the active data users category will be lost.

By focusing on all these elements in concert, the overall value proposition is attractive enough to empower the 91% of the global mobile market to become active data users and in the process move the mobile industry to the next level.

Conclusions

The mobile industry is in a state of transition as it moves from being voice-centric to data-driven. The 4G technologies are being introduced to address the growing data demand, which for most part has been driven by the smart phones and the data cards (and associated devices like netbooks, dongles, etc.). While we focus quite a bit on smartphones, scant attention is paid to the opportunity to attract the vast majority of the non-data featurephone users accounting for over 80% of the global subscription base. It is reasonable to assume that some of these users will gradually migrate towards smartphones and the associated data plans. However, majority of the users either don't find the smartphones attractive or affordable.

Operators will have to focus on introducing devices and services that are affordable and that don't have to rely on big subsidies or two year contracts to recoup the investments. By developing applications and services that use both the broadband networks and the understanding of consumer media behavior, operators can target a broader cross-section of the user population.

By focusing on introducing a new category of devices and data service plans, the mobile ecosystem can be enriched by getting new set of mobile data users. The key will be to maintain the costs of such users to featurephone levels while increasing the data ARPU. This can be accomplished by segmenting users by application use, introducing new brands, keeping the data plan pricing affordable, and most importantly by creating killer user experiences.

Disclaimer

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The opinions expressed in this white paper are those of Chetan Sharma Consulting. INQMobile sponsored the white paper but Chetan Sharma Consulting did all the research and writing for the paper.

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Chetan Sharma is President of Chetan Sharma Consulting - a management consulting and strategic advisory firm focused on the mobile space. Executives from wireless companies around the world seek his accurate predictions, independent insights, and actionable recommendations. He has served as an advisor to senior executive management of several Fortune 100 companies in the wireless space and is probably the only industry strategist who has advised each of the top 6 global mobile data carriers. Chetan has helped several global and local players in the ecosystem develop their mobile advertising strategies. Some of his clients include NTT DoCoMo, Disney, KTF, China Mobile, Toyota, Comcast, Motorola, FedEx, Sony, Real Networks, Samsung, Alcatel Lucent, KDDI, Virgin Mobile, Sprint Nextel, AT&T Wireless, Reuters, Qualcomm, Comverse, Motricity, Reliance Infocomm, SAP, Merrill Lynch, American Express, and Hewlett-Packard.

Chetan is the author or co-author of five best-selling books on wireless including *Mobile Advertising: Supercharge your brand in the exploding wireless market* and *Wireless Broadband: Conflict and Convergence.* His books have been adopted in several corporate training programs and university courses at NYU, Stanford, and Tokyo University. His research work is widely quoted in the industry. Chetan is interviewed frequently by leading international media publications such as *Time* magazine, *New York Times, Wall Street Journal, Business Week, Japan Media Review, Mobile Communications International,* and *GigaOM,* and has appeared on NPR, WBBN, and CNBC as a wireless data technology expert.

Chetan is an advisor to CEOs and CTOs of some of the leading wireless technology companies on product strategy and Intellectual Property (IP) development, and serves on the advisory board of several companies. He is also one of the most sought after IP strategist and expert witness in the wireless industry and has testified in some of the most important cases in the industry. Chetan is a senior member of IEEE, IEEE Communications Society, and IEEE Computers Society. Chetan has Master of Science degree in Electrical Engineering from Kansas State University and Bachelor of Science degree from the Indian Institute of Technology, Roorkee.