

Mobile Internet Product Portfolios 2011 - 2016

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Abstracts

Why does this Report hold a special significance for MNOs worldwide? Following from our last work – Mobile Broadband Grand Prix 2011 – 2016, TeleResearch Labs decided to do an exclusive project on Mobile Internet Service Delivery. That gave birth to Worldwide Mobile Internet Product Portfolios (MIPP) 2011 – 2016. Mobile Internet Devices (MIDs) – the platform for MNOs to deliver mobile Internet, are flooding markets, thanks to the mad rush by MID makers attempting to outdo one another for the sake of higher revenues. However, in their over-excitement, many players are likely to fall flat on their faces during the next six years, or even before, if they do not strategise their production right now – To avoid that, probably a bit slower, more mature approach is the need of the hour. It's not about MIDs…it's whether the devices you are producing would actually help MNOs achieve their ultimate goal – ramping up their ARPUs at an ever-incremental pace. If you can't help MNOs achieve that, the chances are all your devices might never take off shelves. Sorry to be shocking the MID manufacturers community, but it's imperative that MNOs and the vendor community must start working in tandem more than ever.

To answer the question we put in the beginning, MNOs worldwide, need to realise that no matter how big they are, the end-user is fast losing patience – he needs seamless access to the Internet at all times, at all places, and on devices to which he could relate to and find friendly to operate. Towards this, you could lose that 'brand image' that you have worked upon years building in the consumer's mind in a blink of an eye. Major outages, increasing latency even on some of the so-called '4G' networks are a cause of growing alarm, especially as we move from the era of voicedominance to datadominance on networks. Moreover, a careful, deep look needs to be given to the pricing part. To help provide this solution to MNOs, that's another reason we have not limited our research to just the operator and device maker community per se, but have covered and analysed each and every business even remotely connected to/ supporting the Mobile Internet ecosystem, globally – Cloud Computing providers, Network equipment



manufacturers, chipset makers, app developers, service enablers, MVNOs, retailers, wholesalers etc., so that all could work towards making the best and most profitable use of the next six years, while minimising their CAPEX & OPEX, and ramping up their revenues as they move towards delivering Mobile Internet to the end-user in a truly successful way.

No matter how many luring mobile Internet plans/ offerings an operator envisages, till he realises the how, when, where, and to whom he ought to/ ought not to offer what plan/ bundle, and on what MID, now and in the future, such an operator cannot hope to last this decade. Same is true for the mobile device makers. True, you might say that you all take care of 'segmentation', but segmentation to what extent? Besides, why is the industry witnessing so many takeovers, and mergers & acquisitions? It's because it's dawning upon everyone even remotely connected to the mobile Internet industry that consolidating forces is the way to monetise their businesses, globally. In this Report that's what we have attempted to answer.

Towards that, TeleResearch Labs assigned a special team to scrutinise MNO and Vendor tie-ups revolving around 'service delivery' of mobile Internet to the end-user – based on not only geographical segmentation, but user-class segmentation, be it enterprise users, small-to-medium businesses, frequent users, youth, high-end user, low-end user, frequent travelers etc.

But for service delivery to be able to bring in constantly increasing revenues to the operator, he needs to pick and choose his device portfolio and vendor selectively. And so does the vendor. If we examine the case of AT&T losing its exclusitivity to carry the iPhone, we would notice that Apple was smart enough to offer it to Verizon as well – in an attempt to check Google's Android onslaught with its partnership with Verizon. But then what about AT&T? It's coming up with an acquisition of T-Mobile – probably to confirm its dominance in the US telecom market, making sure Verizon stays at the #2 spot. This has left Sprint screaming itself hoarse in opposing the deal - as it realises all too well that if the deal goes through, it might be destined to remain at the #3 spot. Sprint's late move from WiMAX towards adopting LTE is another flaw we feel that will leave it lurching. Sprint might continue to fight on the price front – being the only operator left post July 2011 that would still have unlimited data plans for its smartphones, but this cannot last long. The answer lies in diversifying its MID portfolio selectively and in paying close attention to customer service. Remember, this is one area where both AT&T and Verizon lack as per our findings - there are still many T-Mobile users who stick to it simply because they value good customer service and low prices.



We have attempted to analyse these and many more ventures with an eye for the future, and also, what could be the probable deals/ takeovers in the next few years.

All mobile Internet devices are basically same, yet different in their own unique ways. Smartphones have been around for a few years and laptops/ USBs for a significantly longer period of time. However, Apple Inc. revolutionised the mobile Internet concept by launching the first commercial tablet – the iPad, in April 2010.

Besides, it's not simply a matter of 'mobility' – Tablets and smartphones, though rising in popularity, might never be able to eliminate the conventional laptop/ USB stick. Even within similar geographical regions, user adoption of mobile devices varies significantly. The figure below depicts the global shipments of mobile Internet devices in 2010. In MIPP we have tried to come up with ways in which all device segments can continue to co-exist without snuffing out the other, and be mutually profitable for both operators and vendors.

Chart 1: Mobile Devices' Shipments in 2010 (USD millions) We, at TeleResearch Labs, believe that the good old PC might never be fully capitalised, no matter how popular tablets might become. Sorry to be shocking the tablet enthusiasts out there – but you need to harness your excitement about the tabs. It's not a question of too many/ too sudden, but rather, shooting your pigeons selectively. You would never be able to maintain a consistently healthy CAGR vis-à-vis the tab because what you are doing right now is not correct. Well then, what is correct, you would ask?

Firstly, an overhaul of the tab ecosystem is imperative for all players. More user segmentation is the need of the hour. The real challenge that lies ahead of tab makers is how to carve a niche in the enterprise market. Our analysts have particularly attempted to come up with answers to this challenge.

And anyway, there is simply too much hype about tabs – Apple is to blame for that. It's not as if Apple can be said to be true pioneer in tablets, or PCs for that matter. Yet, what the company has managed to accomplish always is terrific marketing – the iPad might never have become the roaring success it is today, and neither do we believe it will be able to hold the tablet fort for long. But where others fail, Apple scores. What is it doing different which others never seem to be able to manage?

We have delved and truly annihilated the marketing strategy of Apple in this report. Besides, one cannot shy away from the fact that for heavy writing/ documenting, a



tablet, atleast as it's now, just isn't too attractive. What could be done to make things better?

A tab is supposed to make life simpler than lugging around a laptop/ notebook, correct? How about simply doing away with even touchscreen typing? Wouldn't it be great to try incorporating a speech-to-text software into it – so that all a user needs to do is speak to the tab to accomplish his needs? Such attempts are already underway at some labs. We take a peek at the latest.

Moreover, smartphones needs to get smarter. Their small screen size is possibly the biggest factor working against them vis-à-vis laptops/ netbooks and tabs. Towards this, researchers in Germany recently have managed to come up with the thinnest pico video projector. The prototype is made up of numerous finely shaped microlenses, each having its own LCD. Despite the device being just 6 millimetres thick, it throws up images that are nearly ten times sharper and brighter than would usually be possible on a device this size. This new system can easily be incorporated into a smartphone to make things better. We have taken a look at the possibility and viability of making such phones on a mass level within MIPP.

TeleResearch Labs has even ventured outside the present galaxy of smartphones by envisaging what might become a reality by 2020 or even before. Though it might sound like too much with today's technological advancement, but cloud computing and devices like docking stations could turn the smartphone into a super computer – one would be able to hook up his smartphone wirelessly to bigger screens/ keyboards/ printers while at work or even at home. This is already underway with Microsoft registering a few patents.

Further development of nano technology might see smartphones evolving to become flexible in shape and design, matched to the tasks the user needs to accomplish. Infact, the handheld could be made into a wearable device, built into a user's clothes even. A person's body mechanisms and movements might be sufficient for charging, and could even replace the portable Bluetooth so that a user can directly hear the voice by a nano device within his ear. This might even lead to more real-time health monitoring services – wherein sensors built into the wearable computing mechanisms would be able to alert the user in real time about his heartbeat/ blood pressure etc., and be streamed simultaneously into his physician's databank.

This technology would enable collecting information like traffic, humidity, temperature, ultra-violet radiations etc. and the data gathered could be sent to a cloud computing



platform, whereby powerful computers could analyse and process it and publish data helpful to the public at large – all real-time. We are upbeat about the sensor technology because it can change the world as we know it today – Because what we are attempting to analyse is that every material thing in the world, including our skin, would become a wireless 'hotspot', able to connect to the Internet effortlessly. We have taken a look at the exciting prospects of wireless wearable computing in the Report.

Security is another arena vis-à-vis MIDs – Since smartphones, tabs and USBs etc. store a huge amount of personal and confidential data, misplacing an MID can cost a user dearly. Towards this, besides usual tracking mechanisms, exploring the possibilities of coming up with sensor technology to safeguard the devices from misuse could be an option for many device makers. Also, since delivering continuous Internet access anyplace, anytime should be the theme for MNOs and vendors, all MIDs a user possesses must be linked – that's another way for safeguarding a user against inappropriate use of his data.

Besides, even while being used, most Wi-Fi hotspots aren't encrypted – so any person could eavesdrop on a user's data while it's being transmitted to his MID. There have been instances when even SSL encryption has left the MID prone to such hackers. TeleResearch Labs analysed the future security prospects that vendors could incorporate to improve security measures on MIDs.

To say that Near Field Communication (NFC) and Location Based Services (LBS) would rule the roost of mobile VAS is putting it mildly.

We postulate that in the future, it won't be too surprising that cash transactions would be completely wiped out as NFC progresses, with more and more handsets having NFC chips. Besides, the social side would get even more interesting. Say, you are at your favourite restaurant and need to order something – all you might need to do is wave your mobile phone in front of the item and it gets ordered automatically; or, let's say you enter your local club and want to know if some of your friends are already there – all you might need to do is simply wave your phone at the reader on the entrance and it would tell you if anyone you know is already there, and if so, in which area of the club. These are just a couple of interesting possibilities with this exciting technology. We have delved deeper within the Report, so that both the operator and vendor community could look forward to mutually profitable association vis-à-vis NFC.

However, NFC chipset manufacturers need to tread carefully – In devices of mass production they can realise cost efficiency by implementing System on Chip (SoC); but



if integration is performed by interfacing at wrong points it could lead to millions being wasted. But then again, NFC chipset makers have another challenge emerging – with the introduction of yet another exciting technology, Zoosh, developed by Naratte, all the benefits of NFC can be realised by any device that has a speaker and microphone as it uses ultrasound to perform secure mobile transactions. Our experts take a deeper look at it within the Report.

LBS is another service which holds vast scope of profitability not just to the telecom fraternity but to the consumer marketplace in general. Even though the technology has been plagued by overrated criticism with fears revolving around the 'privacy' aspect of users, TeleResearch Labs envisage that this is just a passing phase as the public is yet to fully appreciate the tremendous benefits in store that this technology offers. It's a matter of educating your customers – how you do it so that they become active users of LBS and spread it further is amongst some of the points we have touched in this Report. TeleResearch Labs predicts this to be one of the most disruptive technologies in the times ahead, with a user base growing to approximately 526 million by next year.

If you might be wondering, if, after covering so much, how could we have overlooked Cloud computing, which is migrating from industry buzzword to business-centric solutions and is poised to be the biggest trend of 2011, you are wrong! TeleResearch Labs assigned this section to another special team of its analysts, who interviewed over 20 cloud computing experts in order to offer cloud providers, investors and prospective customers a more detailed and consolidated understanding of who cloud customers are and what is driving them to move to cloud today. Experts interviewed for this study stretch across a cross-section of the most prominent cloud propagandists, including industry analysts, senior executives at major cloud vendors, and pioneers of technology firms. This report analyses the key themes about customers and adoption drivers that emerged from the research.

The hype would be shifting from the US towards developing geographies like the sub-Saharan Africa and Asia as they would be witnessing increased investments in technology in the absence of legacy systems. Major vendors like IBM, Google, and Microsoft are investing billions in building out their cloud infrastructures, with Apple coming aboard recently as well, with its 'iCloud' concept.

Moreover, we have presented exhaustive benchmark studies on two of the most popular cloud computing platforms – Haas and SaaS. We have delved into strategical considerations like customer acquisition costs, churn, choosing the best possible model for enterprises etc. However, SaaS could be taking a backseat with Apple coming up



with iCloud, essentially a full-blown laaS platform.

SaaS services such as those offered by Google have infact, already taken the cloud to households. However, as a mass-marketed service, IaaS is relatively new, and we feel iCloud is definitely an Iaas-focused service, with its ability to share applications, videos, music, data, and other resources among Apple devices.

Moreover, the concept of 'personal cloud' has already been realised with lomega launching NAS devices this year – that's bound to prod more and more enterprises to realise that they cannot do without adopting the cloud. What could Google likely be doing to tackle the iCloud challenge? We have attempted to visualize the possibilities to keep the clouds thickening.

Further, as mobile apps would play a pivotal role, we have taken an indepth look at the top apps which would drive the app market for the next few years. Besides, we have analysed what business models could all stakeholders – MNOs, vendors, software developers, app developers, third party enablers etc. can come up with so that all could reap the benefits from the mobile industry. We have taken a deep look at the different platforms (operating systems) and their pros and cons vis-à-vis service delivery concerning mobile apps. Leaving no stone unturned, our expert also given due consideration to top socio-networking platforms and how they are resulting in the uptake of mobile devices worldwide, and would do so right uptill 2016. We also delved into ways and possible strategies to drive app usage in unserved and underserved regions. In developing economies, for example India, even established global players like Nokia have been thwarted by incumbents like Micromax. Why? That's because Nokia failed to pay heed to the vastly differing socio-economic pattern of the Indian market, where over 70% of the population lies in the rural/ underserved areas. In such a price sensitive market, Micromax scored by its low-end handsets, which also support some, but selective apps, which drew favour with users in underserved markets. Our analysts have considered strategic production and pricing techniques of all MIDs - segmenting them not only via geographical/ cultural differences, but user class as well - so as to address the problem of overproduction. This holds true especially for underserved markets that might not be ready yet for the iPad 2/ iPhones, and in which MNOs and vendors would rather do well to market the existing MIDs for the next year or two, albeit in a different parcel.

For those of you who might wonder why we literally 'went into the cold space' by investigating some Global Navigational Satellite Systems (GNSS), here's the take.



Increasing dependency on GPS has resulted in the growth of augmented or complementary solutions for GPS. Complementary solutions that address integrity issues in GPS are provided by the European Geostationary Navigation Overlay Service (EGNOS) for commercial aviation and differential networks for marine applications. Complementary solutions from EGNOS and Global Navigational Satellite System (GNSS) are being used for user segments like land survey and agricultural applications.

GLONASS, Compass, and Galileo are actively competing amongst each other to offer complimentary GPS services – the one who makes an interface control document (ICD) that is chip manufacturer friendly, rather than the one who launches the maximum number of satellites at the earliest, is likely to emerge victorious.

The ICD would help chipmakers to develop chips and receivers that could receive signals from multi-GNSS-based satellite constellations formed by the GPS and the partner constellations. The US - EU agreement on satellite constellations could hint that Galileo is presently in the second position in being the 'preferred partner' choice race.

This also follows from the fact that Galileo has integrated its functions with open civil signal concept of GPS from the beginning. Galileo's signal is complex as far as decoding is concerned at present, but hardware and software enhancements could overcome this hindrance and the future Galileo L1/ GPS receiver would be less expensive than GPS receiver. The support for the Galileo GNSS project remains omnipresent, notwithstanding doubts about Galileo's timelines, as Galileo has 50 or 60 satellites. Galileo could strengthen its chances in the GPS market through early introduction of the Open Service signal-in-space (OS SIS) ICD with commercialisation rights sans any royalty payment. Besides OS SIS ICD, Galileo would need to support the development of software-based multichannel receivers.

Recently, Verizon Wireless and LiveCast came together to offer a complimentary solution to conventional satellite and microwave delivery for high-quality video transmissions from the field to live on-air broadcasts via the new 4G Mobile Reporter. The technique runs on Verizon's LTE network and media houses are enabled to transmit HD-quality video over the network using low-end laptops with a Verizon Wireless 4G USB modem like the Pantech UML290 or the LG VL600.

Field crew can use the 4G Mobile Reporter on their cameras and deliver almost a realtime video streamed feeds to the station without any requirement for satellite trucks. Locations can be tracked dynamically, permitting a display map adjustment to the video playback window as it embeds GPS data regularly throughout the stream.



TeleResearch Labs has investigated further into possibilities of more such tie-ups in the near future so we truly move into the era of 'as-it-happens' service deliveries to the end-user.

Finally, as an 'icing on the cake' our analysts have presented an 'Average Revenue Per Feature' (ARPF) and 'Average Revenue Per Device' (ARPD) concept – One whereby MNOs across the globe can truly get a glimpse, probably for the first time ever, into how to successfully devise their MID portfolios to achieve the maximal revenues from their mobile Internet offerings in conjunction with device makers. We have delved and come up with thought-proviking analysis in an astounding number of 46 tables dedicated to this section. As per our usual modus operendi, we have dug deep and covered features like specific models of smartphones/ tabs/ USBs and embedded Internet devices vis-à-vis different MNOs, regionally – their martket share, user acceptance and behaviour, segmentating further by user-class in urban/ rural areas so that operators can chart their course in terms of CAPEX and OPEX for the next six years.

So, for all connected to the Mobile Internet industry, it's time to sit back and relish the latest product from TeleResearch Labs' stable – The Worldwide MIPP 2011 – 2016, packed with over 50 compelling case studies and numerous prognoses to help you form your business strategies towards increasing revenues while minimising costs for the next six years.



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