Beyond voice and text

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Foreword

Indian telecommunications industry is one of the fastest growing in the world. The industry is going through a second wave of technology and services revolution. With freshly concluded auctions of third-generation (3G) and broadband wireless access (BWA) spectrum, and with the introduction of Mobile Number Portability, the consumers are now poised for services which were uncustomary so far. With the introduction of newer network technologies, the market is also getting flooded with devices that cross our interpretation of conventional mobile handsets. With operators putting focus on network rollout in semi-rural areas and increased focus on the value added services (VAS) market, there is an expectation of unprecedented change in the type of services that we have used so far and will take us into the legions beyond just voice and text.

The number of telephone subscriber base in the country reached around 764mn subscribers by end-2010, with an overall tele-density touching 64.34 and Broadband subscription at 10.71 million. That said, the private operators, which invested heavily to secure spectrum licence and roll out infrastructure in 3G, the potential for VAS revenues appears all the more significant at the present juncture. Currently, the contribution of VAS to the total revenue of Indian telecom operators is just about 9-10%, which is significantly lower when compared with developed markets, however next generation of services is supposed to fuel enormous growth in this sector.

In this report, we look at the potential that lies ahead in services beyond plain voice and sms. We also look at developments in other geographies where 3G services have been launched, and analyse what lies ahead for the industry as it aims to capitalise on the promise of the domestic market place. We believe that the new wave Telecommunications market has a great growth trajectory but will also face major transformational challenges. We address some of these challenges and identify opportunities to capitalise on.

We also address some key challenges that are faced from direct tax and indirect tax view point and see how the same could be mitigated.

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Executive Summary

Telecom networks have always focused on voice as the primary application, then came 'texting' or 'sms' which gained huge popularity and possibly the first "killer app" paving the path to what came to be known as VAS or value-added services. Given the enormous success of mobile service, diversity and heterogeneity in wireless systems evolution have brought in the integration of hybrid mobile and data networks. The public is becoming more enamoured by multi-various applications on their mobiles and more demanding of their communications, connections and devices. Mobile devices are now becoming a multi utility gadget and a means to be a media convergence. People are looking at their hand-set and expecting it to be a device that can click a photograph, edit and modify and send it in an email, while maybe watching TV and storing its content. With blurring of geographical boundaries, thanks to the distance insensitive Internet, majority of businesses and individuals are becoming part of a high-speed networking fabric, which will enable secure digital communication of voice, data, and video to or from anyone, anywhere and anytime. Till recently, it would have sounded like a chapter straight out of science fiction, fortunately the technology now exists to deliver it. Customers now want to pick and chose from multi-various services and they want a fusion of voice, data, and video in all possible mixes and choices to fulfil their desire for anytime access to people, information, and commerce.

Convergence is the key today. We can think about convergence in several different ways. One is in terms of the actual industries converging, such as communication, entertainment, and computing. Another is converging voice, video, and data over a common infrastructure or within a common computing platform. Mobile Apps have large potential to cater to this vast appetite of consumers. The profusion of opportunities means that every communications player has to think broadly and rapidly about what services they plan to launch in the changing communications value chain and how to keep their customers 'hooked'. For Telecom operators thriving means generating large streams of new revenue to replace the inexorable slide of voice revenue and margin. This is where the real challenge is. While the industry at large is excited about media convergence, it also has its share of concerns. There have been a lot of trials of new services globally, many have been successful from a user volume perspective, few if any have made the breakthrough into generating serious revenue. The staggering success of 3G launches in some countries has generated a massive amount of data traffic, but little revenue for the operators or most of the application developers. The vast majority of applications that have been downloaded are free with a consequence of huge data growth. It is a conundrum. So as on the one hand the operators have to develop and launch innovative services that will delight and retain their own customers and prevent churn. On the other hand they have to find business models and invest in partner eco-systems that would entice their customers to expand their overall spending on communications services. The other challenge is educating consumers to use the various new media. The industry will not grow unless the consumer is educated. Apart from reaching consumers at various touch points through convergence of media, companies are also looking at it as a media to cater to individual needs of a consumer. And, for this, the need of the hour is to generate adequate content. Content availability has not kept pace with the changing consumers. Content generators have to generate enough to cater to individual tastes. Added to that, the operators need to be more and more imaginative in their marketing and product strategies and need to constantly innovate newer services.

With the aforesaid paradigm shift in the manner in which the industry worked and will work going forward, the growth in the VAS sector necessitates due planning and structuring of the plethora of complex business transactions amongst the various stakeholders in the VAS value chain. The report identifies some of the key Tax issues that are in store for the stakeholders and analyses the key Tax implications for the new and ever evolving revenue streams, leg by leg. The advent of innovative partnerships and joint venture arrangements that are being undertaken amongst various service providers and telecom network operators, would lead to addressing tax risks like association of persons and permanent establishment. Needless to say, appropriate planning and structuring of such transactions is imperative with a view to mitigate, to the extent possible, the risks associated while entering into such transactions/arrangements.

The Evolution –
Rise of 3G and 4G

We hear of 2G, 2.5G, 3G and now 4G and as 3rd generation is slowly progressing into the fourth, how do we de-mystify this enigma. One of the things that changes from each generation is the speed at which data can be transferred. Third generation can do up to 2 megabits per second (mbps), Fourth generation improves on that speed with the ability to transfer data at up to 100 mbps. This higher bandwidth sets these two generations apart from previous ones, which could barely transfer data fast enough for streaming.

Third generation of wireless technologies offers us the ability to provide enhancements over previous wireless technologies with high-speed transmission and advanced multimedia access. The quick transmission speed allows for streaming video and lightning fast downloads and uploads. Compared to 2G networks, which offer mostly voice information transmission of a bandwidth of narrowband 200 KHz , 3G technology using a bandwidth of broadband 5 - 20 MHz allowing data transfer at a higher rate of mbps. 3G networks also facilitate faster web browsing and file transfers. Thus 3G is several times higher data speed than 2G. Due to this very high data transfer in 3G enhanced audio and video streaming, video-conferencing support, web browsing at higher speeds and IPTV (TV through the Internet) support. 3G network technology also features better security than 2G technology. The 3G's higher level of security offers user authentication capability when communicating to other wireless devices. 2G networks do not support this security feature.

4G offers enhancements over 3G networks. Other than data rates, the biggest difference between these two is

their technologies. Wideband Code Division Multiple Access (WCDMA), Evolution-Data Optimized or Evolution-Data Only (EV-DO), and High-Speed Packet Access (HSPA) are fall in 3G technologies. Recently lot of mobile companies are trying to merge their technology as 4G, such as Long Term Evolution (LTE), Worldwide Interoperability for Microwave Access (WiMax) and Ultra Mobile Broadband (UMB). HSPA and Multimedia Broadcast and Multicast Service (MBMS) bring important enhancements to W-CDMA networks. However, they do not match the capabilities of broadcasting technologies (such as Digital Video Broadcasting–Handheld [DVB-H] and MediaFLO) and broadband wireless access technologies (such as WiMAX and WiBro) in certain important aspects of mobile TV service delivery and Internet access.

There are several questions now on prospect for the Evolution of 3G like –
- How far will HSPA and MBMS take mobile networks?
- Will 3G LTE support an aggressive fixed–mobile substitution strategy to compete with enhanced DSL services and IPTV?
- Can it provide a broad mix of mobile TV and video services?
- How well will 3G LTE meet mobile operator requirements compared with alternative technologies such as DVB-H and WiMAX?

Global wireless subscriptions for 3G and 4G networks are expected to account for 30 percent of the market within the next five years. The increase is expected to come by 2013, as wireless carriers upgrade their cellular networks to 4G from 3G, and network equipment makers roll out their commercial 4G products toward the end of the year. 4G technology viz. LTE is expected to give WiMax stiff competition in the 4G market. WiMax deployments are remaining resilient in the face of the economic slowdown, although some operators are slowing the deployment rate, WiMax may find itself an attractive alternative in developing countries, where fixed broadband networks have not yet been established.

Gadgets & Devices –
The New Age 'Mobile'

Cellular connectivity is no longer just for mobile phones and laptops. A number of portable entertainment devices (PEDs) now incorporate cellular connectivity, providing a growing revenue opportunity for network operators, content owners, and manufacturers. In fact, there will be significant growth across all categories of 3G/4G-enabled PEDs over the next five years. WCDMA will be the dominant enabling technology across the majority of shipments, with the exception of digital photo frames where GSM will be dominant. Total 3G/4G PED unit shipments across all segments will increase by 87% between 2009 and 2014.

North America will dominate compared to other regions capturing 64% of the worldwide 3G/4G e-reader market by 2014. Asia/Pacific is expected to rank second in market. Total 3G/4G PED unit shipments in Asia are expected to surpass 5 million by 2013. Western Europe 3G/4G PED unit shipments are expected to jump 542% in 2012 over 2011.

As handsets are becoming an integral part of the consumer experience, the availability of a large number of feature-rich handsets at affordable prices or in attractive bundled offers is likely to further drive the adoption of 3G VAS. 3G mobile arrived in Europe in 2003, with data transmission speeds of up to 2 mbps per channel.

Mobile phones are becoming more and more developed over time to respond to modern lifestyles. 3G mobile has opened entirely new horizons and a whole multitude of new 3G devices leave a bewildering array of mobile phones and handhelds to consider when we're looking

at buy a Samsung, Sony, Nokia or any one of dozens of other manufacturers. 3G mobile phone is quite different from other common mobile phone. Users of 3G mobile phones can have the pleasure of real capacity of 3G technology in their hands. 3G devices will be designed to interact between different terminals with different shapes such as mobile phones with larger screens, digital cameras, PDA, videophones, etc. Unlike other 2G mobile phones, the 3G enabled phones that allow users to experience a wonderful voice quality anywhere in the world. 3G phones are like mini-laptops and a vital difference between the online and 3G mobile platforms is that handheld screens are inherently limited by their size, whereas PC displays offer more real estate.

Leading manufacturers of mobile phones such as Motorola, Nokia, Sony Ericsson, LG and Samsung, bring 3G mobile phones and the latest technology and sleek design. No surprises here as Apple demonstrated their power as world-leaders in the smart phone market - great design and functionality. The iPhone first demonstrated how effective a smart phone can be when it provides a good web surfing solution. It brought email to the hands of many who had not been exposed to it; away from the desktop and demonstrated how empowering that could be. It quickly became the standard against which all other consumer smart phones would be measured and still is today. HTC Evo 4G is touted as one of today's top Android devices. The RIM BlackBerry Bold 9700 brought its first 3G BlackBerry and improved on its earlier model with a very smart sleeker design and more power. iPad with Wi-Fi + 3G offers superfast data speeds up to 7.2 mbps over 3G cellular networks and perfect when there is no access to a Wi-Fi network and supposed to seamlessly switch between 3G and even faster Wi-Fi.

Battery technology for mobile portable devices may be stuck in a race condition. Improved battery life can be used up by the upgraded mobile content and enhanced functions. Memory is another constraint to support the high buffer requirements of mobile TV. Current memory capabilities

also is a bottleneck and will not be suited for long hours of mobile TV viewing. User interface design also has to appeal to the end-users and increase the clarity of images without making the handset very bulky. The wider LCD touch screens will be preferred by end-users and iPhone's popularity in the United States is part of the compelling evidence. Furthermore, potential future applications like peer-to-peer video sharing in mobile phones and consumer broadcasting would definitely add to the increasing memory requirements. Research has identified that 3G, if used as a data card/modem, will give impetus to the broadband penetration in the country. One of the reasons for low growth in the Indian broadband market is the challenge of providing high bandwidth connectivity using landlines, especially in remote areas.

Arrival of new 3G mobiles spell excitement in the world of communications and all that goes with this technology and truly changed the way we live and the way we communicate. There is little doubting that the 3G mobile phone market is definitely gaining traction, but another question arises, are we are approaching a crossroads in 3G mobile access and phone technologies. The phones such as these have straddled the fence and have shown the consumer that the benefits of good smart phones are not restricted to the enterprise. India is soon going to have the maximum number of subscribers in the world. There is a surplus of mobile brands available today and needs of different market segments can vary substantially from one to the other but the potential rewards and losses for the different technology vendors could be substantial. Some of the key dilemma facing the manufacturers is how to strike the fine balance between price and features to offer on the device or hand-set, what features would mobile-phone users expect to see in their phones in the near future? As handsets are becoming an integral part of the consumer experience, the availability of a large number of feature-rich handsets at affordable prices or in attractive bundled offers is likely to further drive the adoption of 3G VAS.

Convergence
Services Beyond Voice & Text

3G living has meant changes to our work places and our leisure activities. Mobile phone technology has created a truly incredible technological situation from which our lives will never be the same again. Third-generation mobile phones are being used by different categories of people, from working professionals, who need to stay connected with their work, even when they are on the move, to housewives and students, many people from different sections of society are using these innovative solutions. With advanced features like video calling, full length music track downloads, the internet on the go, web TV, sending and receiving faxes and instantly, downloading e-mail messages with attachments one can send more content to and from mobile phones through messaging or calls, video messages through MMS or email and has truly changed the way we live and the way we communicate. The world's first commercial 3G service was launched in Japan in October 2001 by NTT DoCoMo, with a 64 kilobits per second (kbps) videophone service, and a 384 kbps Internet service. 3G mobile arrived in Europe in 2003, with data transmission speeds of up to 2 mbps per channel.

Mobile users are increasingly becoming reliant on their mobile phones as their primary communications medium and this growing dependence on the mobile device is gradually positioning it as the key repository for other core services. However, the adoptability of services and growth in the number of 3G mobile subscribers will largely depend on the strategies adopted by operators to attract mobile subscribers. Needs of different market segments can vary substantially from one to the other, and the potential rewards and losses for the mobile communications operators is dependent on 'betting' on the right apps. The new market segmentation will be driven by application or by end user.

The users' wants and needs, how they will manage the flood of options and above all whether or not they are willing to pay is what counts. There will be multi-various experiments with fee-based content over mobile networks. New research confirms that in the coming years, key trends will evolve, which will add an ever increasing need for 3G mobile content in the US and in other countries. Opportunities for ad monetization may become additional revenue model as a viable alternative, thereby presenting an opportunity for paid-content providers. Third-party applications will be a major bright spot and is expected to be the source for hundreds of applications that will invoke models of paid subscription based services while some may be provided free of charge. Recent research indicates that nearly 150 million people will access the 3G mobile phone internet at a minimum of once a month , this will increase to over 225 million by 2013, an astounding growth figure which underlines the phenomenal growth in 3G mobile communications.

Multimedia has the potential to vastly increase the range of services available, and offer its users a larger choice of applications, but new technology alone will not ensure success. It is the people who use it who will decide the future of multimedia. Convergence has become a cliche of the new age. In its current usage we refer it in two-ways, one is where we indicate that all transmission media become ubiquitous so that different network platforms can carry similar kinds of services and on another plane we merge the tendency of the previously separate worlds of broadcasting, film, telecommunication, publishing and computing to become involved in each other's business.

The character of "Content" would be lead by multiplicity of applications which can range from the enterprise need to a consumer need. As we would see explosion in data exchange and data traffic, the solutions will take different shapes like Real time face to face chatting, real time imaging like choosing a product after seeing demo, selecting a film after viewing a trailer, fixed images not in real time, like adding images or conversation like an electronic postcard, downloading and listening to music, electronic books, daily newspapers. Enterprise solutions will be lead by more flexible operations focussing on Virtual teams, Virtual Enterprises providing over-the-air services to their employees, virtual networks, video conferencing etc.

In India, another dimension is the large addressable rural market, which has so far remained largely untapped in its potential for using content driven services. It's been observed that the perceived and practical value matrix differs for Urban and Rural mobile user. The obvious reason behind this can be attributed to difference in their lifestyles, difference in their needs and their perception towards mobile as a service. For an urban user, who is more mature mobile user, mobile is a multi tasking device which enables them to communicate, entertain as well as provides them an effective mode of transaction. On the other hand, for a rural mobile user who is relatively new mobile user mobile is a tool for communication. In a sense, it is possibly the only electronic device that they have. While Mobile Apps have large potential to shift from low perceived value to high perceived value in the urban market, in rural market, Mobile Apps may not shift up the value chain unless localised, vernacular, made-to-taste content is provided.

The new market segmentation will be driven by application or by end user, we examine below some of the more advanced and popular solutions in the market today.

Mobile TV

3G opens a new market for the content specifically tailored for mobile TVs. These could include making new–mobile episodes of popular shows which are relatively shorter in length modifying the content to suit mobile TV. In 2005, South Korea became the first country in the world to have mobile TV. Today, South Korea and Japan are at the forefront of this developing sector, attributable to long commuting times on public transportation in Japan and South Korea as reasons for the large number of mobile TV viewers in those countries. Television data can be obtained either through an existing cellular network or a propriety network. In South Korea, mobile TV is largely divided into satellite DMB (S-DMB) and terrestrial DMB (T-DMB). Although S-DMB initially had more content, T-DMB has gained much wider popularity because it is free and included as a feature in most mobile handsets sold in the country today. One of the key challenges leading to adoptability is power consumption on devices and the requirement to improve the processing power significantly to support an intensive application like mobile TV.

One of the most interesting and compelling applications in this area is mobile TV. Given the enormous success of mobile service and the popularity of TV, this combination is a natural one. Variations on this theme include broadcast, multicast and unicast both real-time and stored content. Enabling these types of services on a broad scale clearly introduces some significant challenges, including latency, throughput and network capacity. High quality of service for next generation multimedia support (real time audio, high speed data, HDTV video content, mobile TV, audio, high speed data etc...). Interoperability with existing wireless standard, and support for interactive multimedia, voice, streaming video, internet, other broadband services, seamless switching and a variety of quality services driven by better scheduling and call admission control techniques.

Video Chatting

Today's 3G/IP video calling application platforms enables the most advanced interactive, premium rate 3G Video Chat and Social Networking services. Applications such as one2many (O2M) interactive technologies enable deployment of a wide range of interactive video chat and social networking services. Unlike traditional unidirectional (broadcast) video streaming services where viewers can only view "presenters", One-to-many chat capability enables video callers to switch from passive viewers to interactive chat partners by entering private 1-on-1 chat sessions with presenters and other callers. 1-on-1 chats with presenters can be implemented with a supervised "permission to talk" option, where the presenter controls which callers to interact with, or automatic switching, where the system rotates through callers requesting to chat. Forecasts that consumers will make 29.6 billion video calls in 2015, up from just 3.2 billion this year. During that time, most video calls will be made over PCs, but by 2015, the number of video calls made over the computer will level out as consumers take advantage of video chat services available on mobile devices and Internet-connected TVs.

The report forecasts that the number of consumers using mobile video chat services will increase from about 3 million in 2010 to 143 million in 2015. Mobile Video Chat Revenues to Reach $3.4B by 2015.

Social Networking

Astrology/Tarot: Callers can access information regarding their astrological sign, view recorded video clips on various Astrology topics and view live astrologers. Callers can request to chat with the Astrologer and when accepted, enter a private 1-on-1 chat session.

Fan Clubs/Sports Clubs:
Callers call in to view their favourite sports figures or entertainers and join them in live interactive chat sessions. Callers can request to interact in live

chats with presenters or leave them recorded video messages.

3G Video Dating:

Callers can create profiles with recorded video clips, which other callers can view. Callers can send messages to subscribers they are interested in or enter private chat sessions with other callers in the system.

Premium Content:

Callers can view live or recorded video feeds from various content sources.

Video Blogging:

Callers call in and join other callers in live, multi-party interactive video blogging sessions.

Video Opinions:

Callers call in to voice their opinions and/ or upload live user generated video content, which can be viewed by other 3G video callers or on Internet websites.

In countries like Japan, Korea, USA, Singapore the adoptability is very high. Country like Africa and middle east still struggling to implement this.

Mobile Movies & Infotainment

With the aggressive drive to achieve 360 degree communication, promoters are looking to converge media channels as effectively and efficiently as possible. And the film industry is going digital what with the available mobile, internet and TV channels that are being continuously technologically enhanced. Specialized agencies devoted to promotions through the mobile phone platform are offering complete packages for film promotions in an attempt to cash in on the popular medium, not only can one download mobile phone ring tones of the upcoming film's songs but consumer's can also call a number to listen to the songs before downloading them and listen to interview snippets of the film's cast and crew. Japan, Korea , Australia, US are the main driver in mobile infotainment. It is said that the revenue generated from the mobile platform is substantial. An average film is reported to gross approximately a little over a million as mobile revenue as compared to

a big production banner film that could fetch roughly over a four million.

Mobile gadgets are becoming unique sources of mobile sports & infotainment data, Press conferences, media meets, music launches, out-of-home advertising, print media, film trailers, contests, road promotions and online portals have somehow never been enough. And therefore it's not surprising that with the proliferation of mobile phone ring tones, this area of the music industry is being actively poached and exploited by keen capitalists within the film promotion industry.

The entertainment market in India contributed to 7% of the total revenues for the mobile operators since 2008 with non voice revenues increasing every year. In 2009, the entertainment market contributed Rs 6000 crore accounting to 10% of the operators' revenue. According to the report the global market for mobile entertainment should generate approximately $62 billion in annual revenue by 2010. The influence of 3G on the mobile entertainment growth could be accurately studied by analyzing the pre 3G and the post 3G scenarios. We are already witnessing some changes in VAS and EVAS trends with the introduction of 3G and also seeing a growing trend with the content creators not hesitating to invest in made-for-mobile content.

Mobile News

Information services, in the form of news, travel, weather, sports updates are becoming an essential 'must-have' for many users. This is in line with other platforms where instant access and availability has become the norm - 24 hour news channels and always-on broadband internet services. Few service providers have introduced a new service "M Paper" offering its users to read news papers on 3G enabled mobile phones. This unique collaborative technology partnership will enable news publishers an opportunity to tap the fastest growing mobile mass market of young and technology savvy subscribers who wish to read news and

access their favourite newspaper content while on the move. mPaper opens up a new window of business opportunity for content publishers as well as news carriers to offer daily newspaper on a mobile screen in their original format. The mPaper offers features like archives, search and saving news item available on a monthly subscriptions. The New Media Delivery Platform enables a managed delivery service to publications that value the velocity and dynamism of Web 2.0 space without losing their print identity on WAP-compliant handsets. The mPaper technology aggregates news from publishing partners and on-the-fly converts the text and image content to suit the variety of handset models even vernacular content will be available on the mobile.

Mobile Gaming

Currently, Mobile Games are mainly sold through Network Carriers or Operators portals and this means there are only a few lines of text and perhaps a screen shot of the game to excite the customer. The wireless multimedia value-added services, which are represented by the mobile online game, are becoming the hot spot in this 3G era. Operators all over the world are trying to develop the business of mobile online game. Facing with the large market, how to make the development and operation go into orbit is an urgent problem for the game developers and telecommunication operator. The mobile online games have broken the limitation of lines. Users are able to play the game at anytime and anyplace. The rhythm of the game should not be too slow, because most of the users play the game when they are waiting the bus or on the car. The game should not occupy so much continuous time. What is important is that games should support the different size of cell phone screen, should have the compatibility for the color and sound of the intelligent phone function and the game application should not be too large to load down. The 3G transmission has broken the limitation of the data transmission, which can support to display the multimedia content on the phone. The other is the perfect environment of software and

hardware terminal. The development of hardware and the maturity of the operation system offer the base to different kinds of the plug-ins. The demand of high-quality game will increase if the entertainment feature is easily implemented by the phone. Two strategies are followed by developers and publishers to combat this lack of purchasing information, firstly there is a reliance on powerful brands and licenses that impart a suggestion of quality to the game and secondly there is the use of well known and established play patterns with game play mechanics that are instantly recognisable such as Tetris, Space Invaders or Poker. Both these strategies are used to decrease the perceived level of risk that the customer feels when choosing a game to download from the carrier's deck. For networked games, there are various technologies in common use. According to Survey iphone has been the most successful Development Platform/Operating System in the market. But it's not just iPhones, Android is prominent in the thoughts of the mobile gaming industry, and portal-based gaming is making advances as well. The mobile gaming market was forecasted to have 27.37 million players at the end of 2010, equivalent to 34% of the total subscriptions base. Of the total mobile gamers, 14.78 million will be browsers playing games downloaded from, or on, the mobile internet, with a further 12.59 million playing installed games. The majority of gamers who browse, or 8.39 million users, will play almost every day, according to research, with a further 4.79 million playing once a week and the remainder once a month. Smartphone users will constitute 59% of total gamers who browse, equivalent to 8.73 million users, followed by 5.98 million with feature phones and 76,764 with legacy devices.

By the end of 2015, the total gaming market in the UK is forecast to comprise 42.76 million users, growth of 56% over the forecast period and equivalent to 50% of total subscriptions at end-2015. The browser market will have grown almost 174% to 40.48 million, while non-browsers will have shrunk almost 82% to 2.27

million. End-2015, Smartphone users will constitute 90% of the gamers who browse, with a total of 36.63 million users. A relative newcomer to smartphone location-based gaming, SCVNGR is taking the United States by storm and threatens to shake up the geo-location game market. Originally SCVNGR focused on larger institutions, launching with games created by the US Army and Princeton University. Now, a year after launching, SCVNGR boasts an impressive partner list of over 600 institutions, including universities, museums, and retail stores. SCVNGR is not just a forward-facing game, it is also a development platform, allowing institutions to purchase a number of challenges to customize and then providing them with a web-based application to create challenges.

This year 64 million people will play mobile games at least monthly, a number that will rise to 94.9 million by 2014. These estimates exclude mobile users who play preinstalled games, which offer publishers decent brand exposure but little in the way of monetization opportunities. Gartner maintains the market is still promising, anticipating revenues will enjoy a compound annual growth rate of 10.2 percent between 2007 and 2011, with worldwide end-user spending topping $6.3 billion by 2011.

According to Gartner, the Asia/Pacific market including Japan represents the biggest target for mobile gaming, with end-user spending hit $3.4 billion by 2011 thanks in large part to low PC penetration throughout that area of the globe. India alone is expected to generate mobile gaming revenues of $450 million by 2012. While the Western Europe market is expected to $862 million by 2011, mobile gaming in North America is projected to grow from $845 million to $1.2 billion in 2011.

Mobile Advertising

Although the vast majority of mobile advertising has so far been based on SMS and with little to no success, it is predicted that streamed and broadcast mobile TV services will become the most lucrative

channels for mobile ads by 2010. Analysts predict that spending on mobile TV advertising will grow from $335 million in 2008 to more than $2.5 billion in 2013. Total annual global spending on mobile advertising is predicted to rise to $7.6 billion by 2013. Perhaps the biggest percentage growth is predicted to be in idle-screen advertising, tapped to rise from $7 million in 2008 to $500 million in 2013. According to the report China and the Far East will remain the largest regional market for mobile advertising, because it includes the massive population of China and the advanced mobile markets of Japan and South Korea. Revenues there will rise from $414 million in 2008 to more than $2.1 billion by 2012. The benefits will come not just with replicating the TV service with simulcast, but with the ability to target key demographics and individuals—which is very attractive for advertiser .

Ad support will drive 12.3% of mobile gaming revenues by 2014. Casual gaming on the mobile platform has driven adoption of mobile games to more than a quarter of mobile subscribers and more than one in five members of the US population.

People are accustomed to advertisements in video and are thus less irritated by it than other forms of advertising, especially compared to SMS. However, the ad format will obviously need to be changed because of different viewing habits, and the ads are likely to have a greater amount of interactivity. Focusing on what's happening in the short to medium term, mobile internet publishers will focus on making money from mobile content via user subscribers rather than advertising income, although the business models for 3g communications and content will continue to evolve.

A vital difference between the online and 3G mobile platforms, however, is that handheld screens are inherently limited by their size, whereas PC displays offer more real estate for creative ad formats.

The Other Frontiers
Services and Adoption across the Globe

South Korea 'technically " launched what was touted as the first commercial 3G network in October 2000. Since then, several others have followed, including Japan's NTT DoCoMo, Brazil's Telefonica Celular and Telecom New Zealand. Many of these deployments harness CDMA2000 1X networks, which allow data transmission speeds of up to 153kbps. Both SK Telecom and Korean rival KTF have since rolled out CDMA2000 1XEV-DO, which provides instantaneous data speeds of up to 2.4 mbps. In October 2001, NTT DoCoMo launched FOMA (Freedom Of Mobile multimedia Access), becoming the first operator to roll out W-CDMA (Wideband Code Division Multiple Access), a competing standard with the CDMA2000 technologies. Observers believe W-CDMA will eventually overtake CDMA2000 as the dominant 3G technology, as W-CDMA is part of the natural evolutionary path for existing GSM (Global System for Mobile Communications) networks. According to the GSM Association statistics, GSM accounts for 71 percent of the world's digital market and 68 percent of the global wireless market. Europe has enjoyed the widest WCDMA 3G deployments so far have and networks in Asia Pacific region already started implementing 3G.

The Global mobile Suppliers Association (GSA) in its latest GSM/3G and LTE Market Update (published November 25, 2010) indicates Mobile broadband continues to develop and succeed at a phenomenal pace. Over 99% of the world's WCDMA operators have deployed HSPA on their networks, and this has been achieved in just 5 years. 3G/WCDMA is in commercial service in 135 countries and the leading 3G system globally. 97% of WCDMA operators have commercially launched HSPA.Mobile broadband downlink and uplink speeds using HSPA are evolving. Several operators are launching HSPA+ in 2009 for 21 mbps peak downlink speeds and above. LTE is attracting global industry support; 51 operators have committed to deployments. Migration to HSPA+ was a major trend in 2010 with more than 1 in 5 HSPA networks now with HSPA+ in commercial service. 2010 has also been a good year for LTE, with ever-growing operator commitments to deploy networks, and the future roadmap of LTE-Advanced gaining official approval from the ITU as an IMT-Advanced (4G) technology. The world's first LTE networks were launched in Sweden and Norway. 110 operators are investing in LTE comprizing 80 firm commitments to deploy networks in 33 countries, plus 30 pre-commitment trials and studies. 116 operators have committed to HSPA+ deployments with 63 HSPA+ networks (that's almost 1 in every 5 HSPA networks) now launched. Almost 99% of WCDMA operators have launched the HSPA upgrade for mobile broadband. HSUPA is commercially launched on a third of 353 commercial HSPA networks and is available now in 60 countries on 118 networks. The number of HSPA user devices is rapidly growing, as is the number of suppliers participating in this market. The latest GSA survey identified 2,579 HSPA devices launched by 235 suppliers.

The following are New and important mobile subscriptions milestones have been reached during Q2 2010 reported by GSA survey:

* APAC: 2 billion GSM and WCDMA subscriptions milestone passed

* INDIA: 500 million GSM and WCDMA subscriptions milestone passed

* CHINA: 700 million GSM and WCDMA subscriptions milestone passed

* CLAC: 500 million GSM and WCDMA subscriptions milestone passed in the Central, Latin America and Caribbean region

Japan

World's first launch of 3G was in Japan, in October 2001. Today, Japan has the largest 3G subscriber base, served by two 3G operators. Wide band Code Division Multiple Access (WCDMA) is the 3G technology choice, commercially available on number of networks worldwide. In Japan, statistics show Social networking is growing : 10 million users (50% of teenagers, 35% of 20-30 year old) generate 20 billion PV/month, social networking and 10,000 digital items. 1.7 million users (25% of teenagers, 39% of 20-30 year old). Recent research by In-Stat found that contactless payment, GPS, broadcast TV and related services were gaining traction in the Japanese mobile phone market. However, a good revenue-generating business case should be introduced in order for mobile TV phones to ship in bigger numbers. 3G conversion is almost over 100 million subscribers converted in 8 Years and adoptability is very high.

Korea

It may not have been the first market to launch 3G services, but South Korea has become the most advanced market for mobile services in the world. According to analysts report, The Korean Market for Mobile Services, a window to 3G, despite its first mover status in the 3G marketplace, Japan lags a distant second. South Korean mobile operators, by focusing strongly on revenue sharing, have made it much more attractive to content and service providers to develop and market quality services. This, in turn, has made it more attractive for users to subscribe to these services and to upgrade their 2G terminals. This positive chain reaction has resulted in considerable increase in the number of both content and service providers. Broadband penetration in South Korea is 97%. South Korea is considered a leader in 3G mobile technology with one of the world's highest percentage of 3G handsets users. In total, there were 12.9m 3G handsets at the end of June 2008, up from 1.53m in June 2007 which means a growth rate of 743.9% YoY, compared to a total market growth rate

of 6.3% YoY. 3G is expected to keep booming in Korea with an number of users of 23m in 2010. So , the overall adoptability is very high.

USA

After a slower start, the United States has caught up with Western Europe in the adoption of 3G with 28.4 percent of American mobile subscribers having 3G devices versus 28.3 percent in the largest countries in Europe. The number of U.S. subscribers with 3G enabled devices has grown 80 percent to 64.2 million during the past year. The market has responded enthusiastically as mobile vendors have rolled out their enhanced networks and a new crop of 3G enabled devices. Today, Americans have finally caught up with Europeans in adoption of 3G. The advancements in 3G network technology and the introduction of sleek devices into the U.S. market have paid off as adoption of mobile media continues to grow at a rapid pace.

But USA had adopted 2 very different types of 3G technology. The primary difference between the AT&T iPhone and the Verizon iPhone is the technology each uses for 3G connectivity. AT&T employs the Universal Mobile Telecommunications System in its network. UMTS is built upon concepts from the Global System for Mobile Communications (GSM) standard, the basis for EDGE (Enhanced Data rates for GSM Evolution). Because of this shared architecture, most UMTS devices support GSM and EDGE, including the AT&T iPhone. UMTS phones can be easily moved from one UMTS network to another, making them ideal for international use. Verizon, on the other hand, uses code division multiples access (CDMA) which is often considered more spectrally efficient. Verizon made it official that it will be getting the iPhone, ending years of AT&T exclusivity in the U.S. With the Verizon iPhone a reality, customers with years of frustration with dropped calls and spotty 3G connectivity, are eager to become Verizon customers. This argument between CDMA and UMTS may become a moot point in the next few years,

though, as 4G networks overtake 3G technology. Both AT&T and Verizon are utilizing LTE as a standard for their 4G networks.

Australia

3G technology and its commercial applications were introduced in Australia on April of 2003. A pre-commercial demonstration of 3G technology was done in the city of Adelaide, South Australia. This pre-commercial demonstration of a 3G network was actually built as part of the 2002 IT world Congress. Despite having a relatively small population, Australians today are eager to see what 3G services can offer to them. As a matter of fact, IDC technology analysts have published figures that suggest an optimistic view for 3G usage and subscription of Australians to 3G services. Broadband penetration in Australia with 63% .This eager acceptance of 3G systems is partially due to the willingness of many Australians to experiment with newer technologies. Another reason is that Australia's mobile phone industry offers more competitive prices. Many mobile carriers in Australia actually offer competitive payment schemes and plans, making 3G services accessible to many subscribers. 3G mobiles continue to offer various features such as video conferencing and video mainstreaming. In Australia most of the mobile carriers move in 3G upgrades on 2010. As far as Australia is concerned, they now have no less than 3 nationwide broadband mobile networks.

The operators are rushing plans for the upgrading of the network, and this should give the paying public faster downloads, and better services. To complete the Big 3, there is Telstra, they pioneered things, when they first deployed faster mobile systems via the much-touted NEXT G, which has become a tremendous force to reckon with, as far as all competitors are concerned.

Europe

The number of 3G users passed the 200 million mark in Europe in 2009 and will exceed 300 million in 2010, according to figures cited by Qualcomm's Andrew Gilbert . A third of Western Europe's mobile subscribers now have 3G, and this is expected to reach 50% by the end of this year. Eastern Europe represents even more interesting growth potential - in this market there are 30 million 3G subscribers, representing just 7% penetration which is expected to double this year. Poland now has more than 10 million 3G users and that Russia is also rapidly growing its user base, particularly now that spectrum has finally been freed up in Moscow.

Most 3G users tend to be contract customers. In Europe as a whole 70% of 3G users are on contracts and 30% are pre-paid. In the wireless market as a whole, 50% of users are contract and 50% are pre-paid. And there is also evidence that 3G handsets are moving down in price. In 2009 there were 132 million 3G devices on the market, an increase of 8% over 2008. In 2010 the number is expected to rise to 153 million. In 2009, 42% of all handsets sold were 3G.

High-speed data has been clearly driving growth but it's not just about dongles any more, it's also about handsets. Dongle sales reached around 36 million in 2009. Handset sales will be boosted by increasingly attractive form factors and operating systems. Android, for example, now has just 2% of the market. Forecasts from CCS Insight that suggest 50 Android devices will hit the market in 2010.

Another important driver of 3G this year will be UMTS 900. The technology, which enables innovative applications and services such as multimedia and location-based services, was deployed in Western Europe after competitive spectrum allocations a decade ago. Spain leads the way with as much as 56.5% penetration, according to BMI estimates. The UK comes next, with 37%, while France and Italy are tied on 26.4%. We estimate 3G penetration in Germany to be 18%, but this figure may be higher as some operators do not release breakdowns of their subscriptions; besides, 3G network services are widely

used in prepaid phones in the country. The UK also leads in the % that accessed news (36.5% compared to the European average of 29.7%) and accessed a social network while on their mobiles (23.8% vs 14.9%). It's Italy however that has the highest rate of Smartphone users (33.6%), while Spain (56.1%) has the highest number of 3G subscribers. In Europe Spain and Italy are the key players in 3G.

In Italy, 3G services (UMTS), was launched in March 2003. On 22 February 2006, first launch of (HSDPA) technology in Italy, with initial coverage of Rome. The HSDPA service, which provides wireless broadband access with speed up to 14.4 mbps, has been initially launched offering connection speeds up to 3.6 mbps. The service has been called ADSM (as a contraction for ADSL Mobile). On 14 May 2006 3 was the 1st in Italy to launch the Digital Mobile TV with the DVB-H technology (70% of population); this service is currently available with three mobile models LG U900, LG U960 & Samsung SGH-P910.In Europe Italy is a country which has high adoptability rate in terms of 3G service.

China

The second trend is the emergence of China's two leading telecoms-equipment-makers, which have entered the global stage in the past five years. Initially dismissed as low-cost, low-quality producers, they now have a growing reputation for quality and innovation, prompting a shake-out among the incumbent Western equipment-makers. Having long concentrated on emerging markets, are well placed to expand their market share as subscriber numbers continue to grow and networks are upgraded from second-generation (2G) to third-generation (3G) technology, notably in China. China announced in May 2008, that the telecoms sector was re-organized and three 3G networks would be allocated so that the largest mobile operator, China Mobile, would retain its GSM customer base. China Unicom would retain its GSM customer base but relinquish its CDMA2000 customer base, and launch 3G on the

globally leading W-CDMA (UMTS) standard. This meant that China would have all three main cellular technology 3G standards in commercial use. Finally in January 2009, Ministry of industry and Information Technology of China awarded licenses of all three standards: TD-SCDMA to China Mobile, W-CDMA to China Unicom and CDMA2000 to China Telecom. The launch of 3G occurred on 1 October 2009, to coincide with the 60th Anniversary of the Founding of the People's Republic of China. Broadband penetration in China with 14% . According to the report 3G adoptability rate in China is not up to the mark. Thus there are more chances of penetration.

Singapore

3G technology and its commercial applications were introduced in Singapore on February 2005. Singapore has developed an advanced and reliable telecommunications infrastructure, and its government is strongly committed to making Singapore one of the most connected cities in the world. A high-quality, progressive telecommunications regulatory regime has resulted in a richly competitive market, and all restrictions on direct and indirect foreign ownership within the country's telecom sector have been lifted. Singaporeans have experienced higher broadband speeds and more competitively priced services, resulting in greater uptake. Household broadband penetration is well in excess of 100 per cent in mid 2010. Apart from the high household penetration, public access is especially good. Singapore's Government initiative has put in place more than 5,000 public hotspots around the island. Also, over 50 per cent of mobile users are 3G. Despite these successes, Singapore has not allowed itself to become complacent. The island state remains keen to build on its excellent technology base. The industry regulator's vision of unlimited bandwidth and "supercomputing-on-demand", accessible anywhere and anytime is quickly becoming a reality. The government and operators have continued to maintain a strong commitment to making broadband

Internet access widely available to the population while at the same time raising the quality of access. Initiatives such as the Next generation National Infocomm Infrastructure (Next Gen NII) are extremely successful. Moving forward, the Next Generation National Broadband Network (NGNBN) initiative is well under way. Singaporeans have experienced higher broadband speeds and more competitively priced services, resulting in greater uptake. Despite new efforts to deduct inactive prepaid customers from their reported user base, Singapore's operators continue to report strong growth in the number of contract customers and 3G subscribers. At the end of 2009, Singapore had 3.181mn 3G subscribers, accounting for 46.4% of the total mobile market. Increased competition in the sector, together with increased smartphone penetration rates, is expected to drive the use of mobile data services and applications over the next few years, positively impacting the 3G market. In addition investment in upgrading mobile networks to HSPA+ and trials of LTE should aid network capacity as greater traffic occurs. In 2010, we now predict that the 3G subscriber market will grow by almost 20% to surpass 3.8mn subscribers. However, in the latter years of our forecast, we now expect growth in Singapore's 3G subscriber market to slow significantly. Slowing growth reflects an increasingly saturated market and the need to take into account only active mobile customers when assessing the growth potential of the 3Gmarket.According to the report 3G adoptability rate Singapore is very good.

AME Region

Services carried over wireless infrastructure are playing an important role in narrowing growth inequalities for Africa and the Middle East, since they can reach communities that would otherwise have been excluded from development. As networks expand and higher-capacity technology becomes available, mHealth applications will grow in complexity and reach. We expect complex applications with higher technology requirements to become more prominent in Africa as deployment of 3G networks in the region increases. Pyramid projects a 40% rate for 3G penetration of mobile subscriptions by 2015 in the AME region. The availability of low-cost smartphones will take mHealth and other mobile applications for development into a new stage. Innovative solutions will bridge the literacy and language gaps and therefore widen the possible uses of mobile applications in the health sector. Published monthly for each of the worlds most dynamic regions, Telecom Insiders are packed with trend analysis, industry best practices, market sizing and forecasting, competitor analysis, and case studies, providing you information you can leverage to make better business decisions. mHealth Gains Popularity and Complexity as Mobile Penetration Climbs in AME looks at the opportunities created by ICT in the healthcare sector in the AME region. Pyramid provides an overview of current mHealth initiatives in the region, highlight the need to recognize a two-pronged, technology-based approach to deliver mHealth applications, and highlight the importance of public-private partnerships for implementing sustainable and scalable mHealth projects. There are a large number of mHealth applications being deployed in the region. Many projects have successfully completed their pilot stages and have entered the path towards socially-based, sustainable solutions. SMS-based mHealth applications still dominate, and the opportunities provided by expanding higher capacity networks and low-cost smartphones in the Africa and Middle East region will open the space to innovative mHealth applications that provide needed services and information, while addressing literacy-based access gaps. mHealth applications and programs are more likely to succeed if implemented under public-private partnership arrangements, which lead to better planning, project management, and access to resources.

Tax Considerations
Evolving business structures and revenue streams

Growing importance of Tax management:

a. Growth of MVAS market:

The Mobile Value Added Services (MVAS) market in India has experienced an astounding growth over the last decade. The roll-out of the 3G services and implementation of Mobile Number Portability in India are expected to bring a paradigm shift in the eco-system of the mobile industry in a short span of time. Innovative and complex MVAS will be the tool for service differentiation and customer retention. Needless to say, as MVAS evolves over a period of time, unique business models involving domestic as well as cross-border transactions and new streams of revenue are expected to develop. These would throw its own set of challenges and risks, especially given the changing landscape of Taxation in the country with the proposed implementation of the Direct Taxes Code Bill 2010 and the Goods and Services Tax Act with effect from 1 April, 2012.

MVAS market in India is about to enter its second decade where mobile television, video-on-demand and user generated content are expected to be the key drivers.

MVAS can be broadly classified into Entertainment, Information, MCommerce and Mobile Applications. Traditionally, Entertainment VAS – Bollywood and Cricket – have been the key driver for growth of MVAS in India.

As the ecosystem evolves and newer mobile users get added to the system, entertainment VAS is expected to continue to have high perceived value among both, urban and rural users.

MVAS has also resulted in the emergence of an entirely new business eco-system giving rise to supporting industries such as content development, content aggregators, technology companies, software developers etc. These stakeholders playing across the MVAS value chain have, sometimes, overlapping roles and functions.

The stupendous growth in the MVAS market over the last decade has created a crucial, additional stream of revenue for mobile operators. It is expected, as the MVAS market expands, for advertisement revenues to constitute another source of income for some of the stakeholders in the MVAS space.

b. Innovative partnerships in the MVAS space:

In recent times, several innovative partnerships or joint ventures have been forged in the MVAS space between mobile operators and a spectrum of players, ranging from coffee chains to social networking sites.

Aircel and Facebook have recently announced a tie-up whereby Aircel users can post their status updates on the popular social networking site, Facebook, via voice. Similarly, in the USA, Starbucks made news by releasing a new mobile payment application software called Starbucks Card Mobile. The app will generate a special code that will be scanned by a scanner placed at all registers and that's how the user will end up paying for anything purchased from Starbucks. The market is flourishing with many such innovative application softwares created for smart phone devices.

Likewise, OnMobile Global and Madison World have entered into a joint venture. Leveraging the state of the art technology and VAS expertise possessed by OnMobile and the media expertise of Madison World, the new company would focus on leveraging the OnMobile multi-channel advertising and marketing platform, opening up new direct sales and revenue channels for marketers.

Innovative, path-breaking partnerships/ joint ventures in the MVAS space are expected to grow by leaps and bounds in the near future. And with the growing interest and demand in this space, MVAS market is surely going to be the "One to Watch Out For" in the near future.

c. Why Taxation assumes importance:

With the introduction and growth in new streams of income for mobile operators and the innovative partnerships/ relationships between the various stakeholders in the MVAS value chain, come different Tax challenges.

MVAS is predominantly to do with digital market/e-commerce trade, where commercial transactions are no longer defined by geographical boundaries and physical transactions are replaced by bytes of data. Since commerce can be conducted virtually and instantaneously around the globe at the click of a button, one of the key questions in international trade is where would the profits, arising to the different constituents/players in the MVAS chain, be taxed.

The task of taxing MVAS transactions on the internet is daunting, since the data flowing through the vast annals of the internet is intangible and the network on which it is built is spread over globally. This gives rise to complex cross border taxation issues.

The Indian tax authorities are perceived to be very aggressive as far as examination and taxation of new unprecedented transactions or structures are concerned. Thus, appropriate planning and structuring of transactions in the ever evolving MVAS space should be considered, keeping in perspective the size and complexity of the proposed transactions.

Taxation Issues for the stakeholders in the MVAS value chain:

a. MVAS Value Chain:

The MVAS value chain consists primarily of six entities as depicted in the diagram below:

Stakeholders in the MVAS value chain
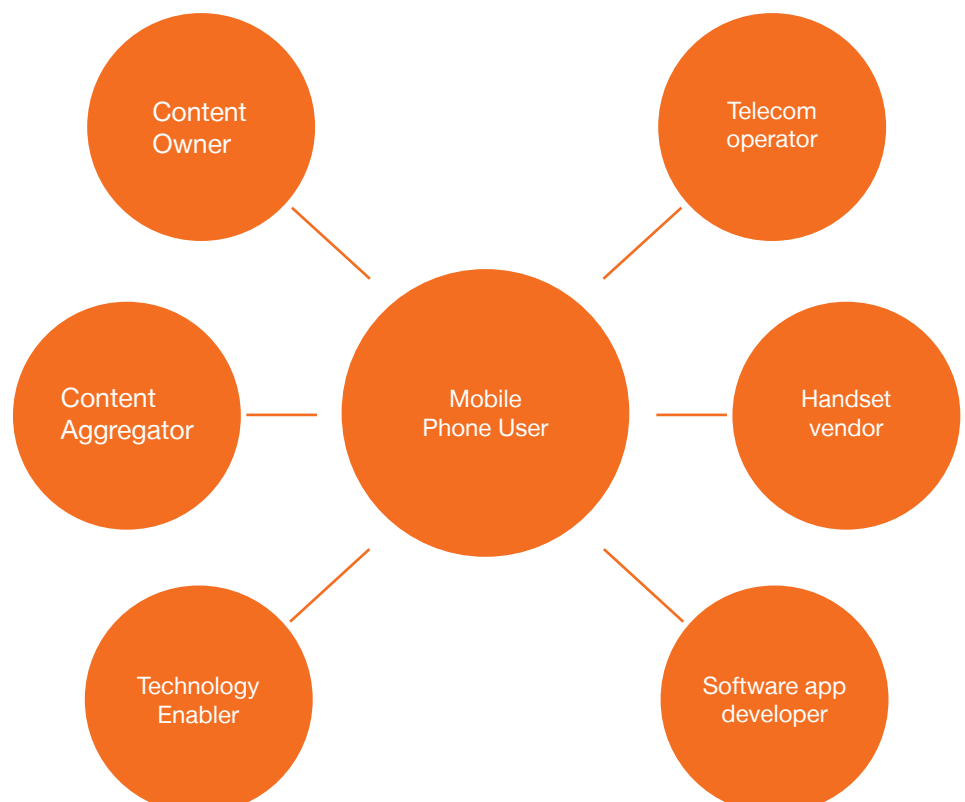
The content owner would typically hold the copyright of the content and applications that they have created.

The content aggregators are parties who collect specific types of content from various content owners and deliver the same onto the mobile.

Technology enablers are entities that provide platforms that form the basis of interaction with the mobile phones. The technology enablers could also provide different types of applications that are meant to provide specific kinds of services to mobile users. Basically, they provide backbone infrastructure to facilitate the additional services that could be used.

The software developer develops or manages the entire or majority of the software development function.

The aforesaid entities jointly provide MVAS to the users. Having said that, it may be relevant to understand how the revenue would flow between the various stakeholders in the MVAS value chain.

b. Revenue sharing model:

Mobile operators form the center piece of the mobile ecosystem. Operators have been the key beneficiaries of MVAS revenue. The mobile operators' share of revenue is generally in the range of 60-65% depending on the type of content that is being delivered to the users. The rest of the revenue is shared among content developers, content aggregators, copyright owners and technology enablers.

A typical revenue sharing model is tabulated below:

Where a copyrighted content is involved, the mobile operator gets 60% revenue, a technology enabler gets 15% while content developer and aggregator together gets 15% share in MVAS revenue. The copyright owner gets balance 10% of MVAS revenue.

In case of non-copyrighted content, mobile operator receives 65% margin in revenues, a technology enabler gets 20% and balance 15% goes to content developer and aggregator.

With the introduction of 3G services, in future, the revenue sharing ratio is expected to tilt in favour of the content aggregators, content developers, copyright owners and technology enablers. This is in line with the trend in evolved mobile markets like China.

Stakeholders' Revenue	Copyrighted content	Non - Copyrighted content
Cellular operator	60%	65%
Technology Enabler	15%	20%
Content Developer/Aggregator	15%	15%
Copyright/Conetnt Owner	10%	

Source: IAMAI Report on Mobile VAS in India: 2010, dated July 2010

Direct Tax Issues:

There are a number of direct tax issues which could affect the inter se relationships between the different stakeholders within the MVAS space.

Taxation of MVAS transactions challenge the adequacy and validity of principles of domestic taxation such as wider definition of Royalty and Fees for Technical Services (FTS) under the Indian Income-tax Act, 1961 (the Act), as compared to the definition under International tax treaties. Further, international taxation aspects such as physical presence in India, place of establishment (permanent or otherwise) etc, has formed the basis of asserting either tax liability or withholding tax obligations in India, making the challenge more real. The task becomes more daunting in case of innovative 'partnerships/joint ventures', as reported in many media and financial statements, whereby stakeholders in the MVAS chain from different countries come together to provide innovative solutions in the MVAS space. These partnerships/joint ventures are formed either by simply entering into an agreement (with rights and powers granted to each party) or by forming a joint venture entity (and entering into a joint venture agreement). Each such form poses tax challenges as discussed hereunder.

Considering the complexity of the various transactions, it may be interesting to understand the key issues as may be relevant to the MVAS stakeholders.

a. Taxation aspects for the stakeholders in the MVAS value chain:

With a view to better understand the tax issues under the different income streams in the MVAS value chain, the below paragraphs discuss some of the key income streams and the related Direct tax issues associated with the same.

i) Payment by end users to mobile operators/content owners/content aggregators for content e.g. software applications or Intellectual Property Rights (IPR) protected content like music etc: *(refer to the adjoining diagram)*

Where recipient is a resident of India:

Where the end user, typically individuals, downloads for instance a copy of an application software or an IPR protected content such as music for personal consumption, and makes direct payment to either the mobile operator or the content owner or the content aggregator in India, then under the provisions of the Act, there may not be any withholding tax obligations which could devolve upon such end user primarily for two reasons: since individuals are not liable to withhold tax in respect of payments to residents under the Act and since the payment is for personal consumption.

Where recipient is a non-resident:

However, in case of payments to content owners or content aggregators who are non-residents and payment is made in

Mobile user - different payment streams
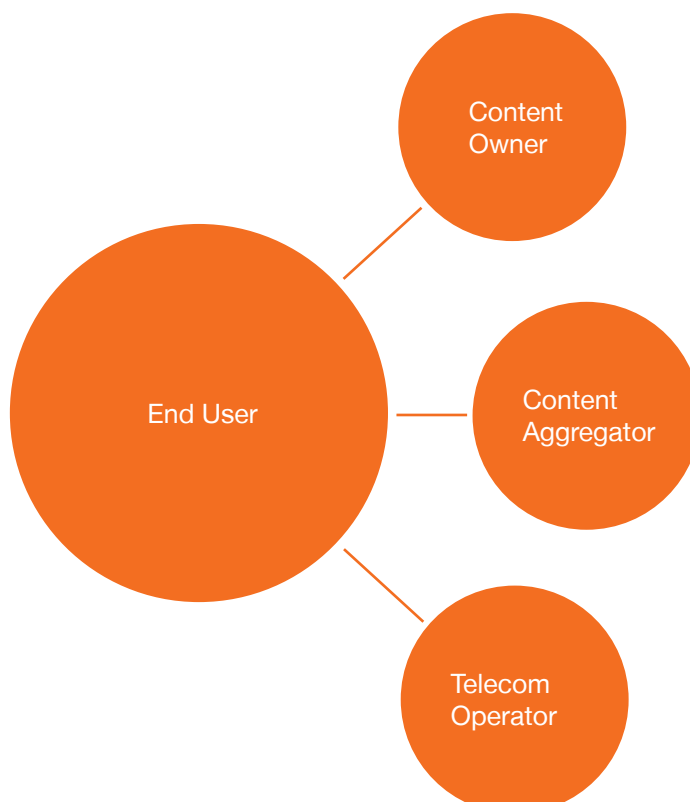
foreign currency, generally via the internet, there may be withholding tax implications in the hands of the payer, depending upon whether the payment is liable to tax under the provisions of the Act or the applicable tax treaty. With growing use of smart phones (such as Android, iPhone, Blackberry etc), there are a plethora of apps and IPR content (especially music), which are downloaded by end users by making online payments to overseas app/IPR content owners.

The liability to tax of these app/IPR content owners may depend on the nature of the content given (use or right to use of a particular IPR or software etc) and the manner in which it is given i.e. rights and obligations vis-a-vis the said IPR or software etc, and whether the same falls within the four corners of the definition of Royalty or Fees for Technical Services as defined under the Act or the applicable tax treaty, as the case may be. Generally speaking, the definition of Royalty or Fees for Technical Services is wider under the Act as compared to certain tax treaties. Further, the rate of withholding tax under some tax treaties is lower than under the Act. This makes the tax treaty provisions more beneficial.

Further, there is no minimum threshold limit specified under the Act or the tax treaty, thus tax is required to be withheld even in case of miniscule payments if the said payment is liable to tax in India.

However, if the payment is not liable to tax in India under the Act or under the applicable tax treaty, then in the absence of business connection under the Act or permanent establishment under the treaty, as the case may be, the payment may not subject to withholding tax provisions in India.

On broad principles, if the end user is not granted the following rights in the application software or the IPR content downloaded, then the payment may not be taxable as Royalty:

• Right of duplication (except for backup purposes)

• Right to make copies

• Right to commercial exploit the software or IPR content

• Right of adaptation or alteration or reverse engineering

• Access to source codes or secret formula, etc.

It may also be pertinent to note here that as per the Organisation for Economic Cooperation and Development (OECD), a transaction that permits the customer to electronically download the digitized products for the customer's own use or enjoyment would not give rise to Royalties but would be treated as Business Income.

Further, as per the OECD, where the provider electronically delivers data to the subscribers periodically in accordance with the personal preferences, the principal value to the customers is the convenience of receiving widely available information in a custom packaged format tailored to their specific needs, the income would be characterized as Business Income.

The interplay between the provisions of the Act and the tax treaty provisions would need to be thoroughly analysed in every case based on the specific fact pattern. One would also need to analyze whether the payee has a taxable presence in India for the purpose of determination of tax liability in India. Under the Act and the tax treaty, in certain cases, existence

of agents in India, provision of services through employees/other personnel, availability of place at disposal, amongst others, could create a taxable presence for the payee in India.

In case a taxable presence is created, the payee may be liable to pay tax on its income in India on a net basis (as against a gross basis if there is no presence), and consequently issues of attribution of profits to the Indian operations, what could be a reasonable basis of attribution, etc, would need to be addressed.

The withholding tax obligation assumes importance, since the Act imposes vicarious obligations on the payer of income. In fact, apart from stringent penalties and interest exposures, there is also the risk of disallowance of the expenditure incurred, in case of default in complying with the withholding tax obligations.

ii) Payment by mobile operator or content aggregator to content owner:
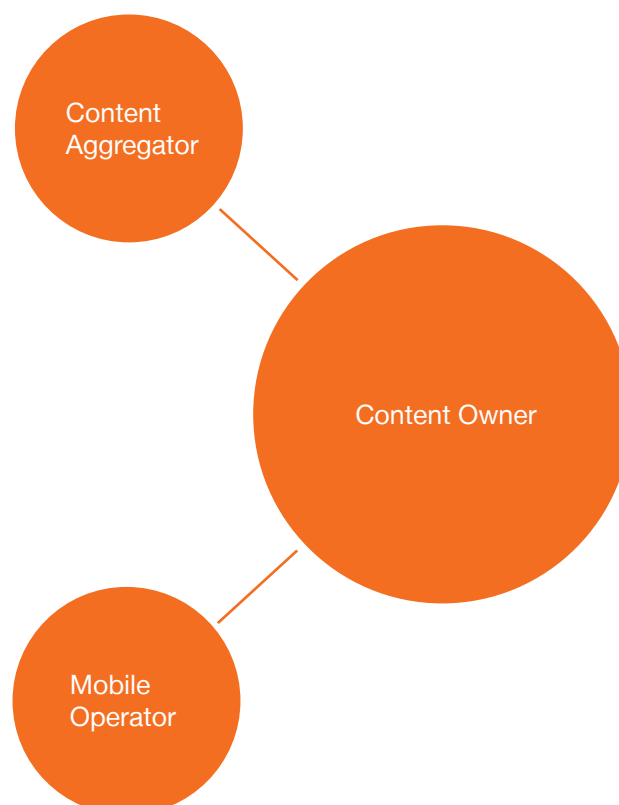*(refer the diagram below)*

Where recipient is a resident of India:

If the payer is an individual, the comments under (i) would continue to apply i.e. the payment would not be liable withholding tax. However, if the payers are other than individuals, which is likely to be the case, then the withholding provisions may apply depending on the nature of the agreement and the rights granted to the mobile operator or content aggregator by the content owner. Refer to our comments under (i) above as regards when can an application software or IPR content said to be falling, in general parlance, under the definition of Royalty.
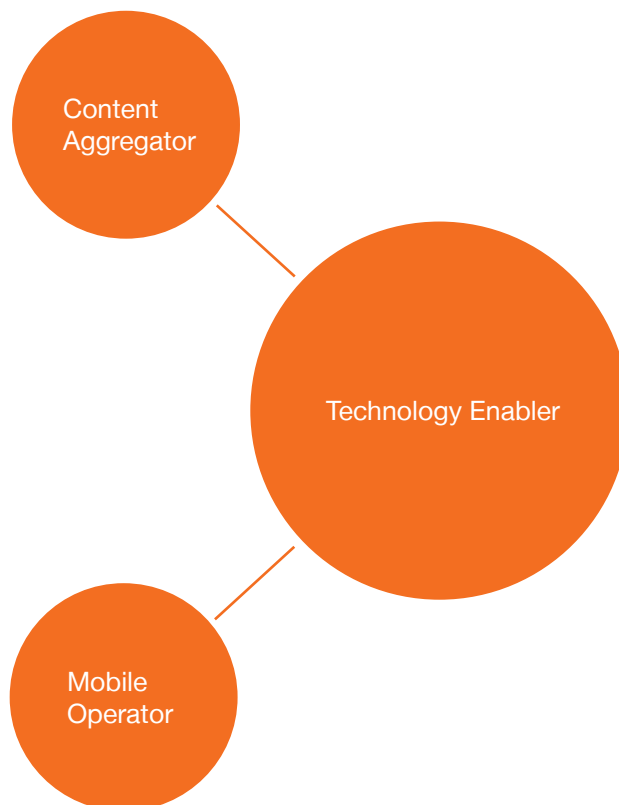
Where recipient is a non-resident of India:

Our comments given under paragraph (i) above under the heading 'Where recipient is a non-resident' dealing with Royalty and Fees for Technical Services would hold good in the instant case as well.

Income stream for the content owner

Income stream for technology enabler

iii) Payment by mobile operator or content aggregator to technology enabler for use of facility: *(refer the diagram above)*

Mobile operators or content aggregators are likely to make payments to technology enablers for use of server capacity for storage of content, or for use of the infrastructure facility for delivery of MVAS solutions, etc. The question that arises is whether the payment for the use of server capacity or for the use of the infrastructure facility is subject to withholding tax. This would depend on whether the payment is liable to tax as Royalty (equipment royalty) or Fees for Technical Services under the Act (for payments made to residents) or under the treaty (for payments made to non-residents).

Where recipient is a resident of India:

The question that arises for consideration in such cases is whether the payments to

the technology enabler for use of space/facility/equipment, would be taxable under section 194J (which applies to payments for equipment royalty or for professional or technical fees) or section 194I (which applies to payments in the nature of rent for use of equipment/machinery/plant).

The categorization assumes importance especially since there is difference in the rate of tax applicable under the aforesaid sections i.e. a base tax rate of 2% under section 194I or 10% under section 194J.

Given below are some broad principles laid down vide certain judicial pronouncements in the context of whether such a payment would be liable to tax:

- Income from provision of 'standard facilities' should not be characterized as Royalty or Fees for Technical Services but business income

- Mere collection of a fee for use of standard facility provided to all those willing to pay for it does not amount to fees having been received for technical services

- The mere fact that the service provider uses sophisticated equipment for provision of such services does not result in provision of technical service to the subscriber.

Where recipient is a non-resident:

Our comments under paragraph (i) under the heading 'Where recipient is a non-resident' would apply here as well. The added dilemma here would be to determine whether such payments would qualify as Fees for Technical Services under the Act or the applicable tax treaty. Some tax treaties contain a narrower definition of Fees for Technical Services (namely, the concept of 'make available') as compared to the scope of definition of Fees for Technical Services under the Act, hence narrowing the applicability of withholding tax provisions. Further, some other treaties do not contain the 'equipment royalty' clause in the Royalty definition (in contrast to the provisions of the Act) and to that extent, relief may be possible.

The Technical Advisory Group formed by the OECD has listed down 6 factors in its Report dated 1 February, 2001, which could be useful for purposes of determining whether payments are for 'the use of, or the right to use, industrial, commercial or scientific equipment':

- Whether the customer is in physical possession of the property;
- Whether the customer controls the property;
- Whether the customer has a significant economic or possessory interest in the property;
- Whether the provider bears any risk of substantially diminished receipts or substantially increased expenditures if there is non-performance under the contract;
- Whether the provider uses the property concurrently to provide significant services to entities unrelated to the service recipient;
- Whether the total payment substantially exceeds the rental value of the computer equipment for the contract period.

Based on the facts of each case and the nature and substance of the agreement, agreements may be required to be structured with a view to mitigate tax consequences (liability to tax, withholding tax obligations etc) in India. Generally speaking, if the aforesaid factors/ conditions are not satisfied and no "right to use" is granted, then the payment to the technology enabler may not be taxable in India.

iv) Advertisement revenues for content aggregators or mobile operators:

A common trend that is catching up recently is the variety of advertisements that are displayed on the software applications downloaded on the end user's mobile phone or on the internet pages that are accessed using push and pull WAP technologies. There are complex and multitude possibilities of advertisement spends as the MVAS sector expands and multiplies and this throws up newer streams of revenue in the MVAS value chain.

Where the recipient (content aggregator or mobile operator) is a resident of India:

The question that arises for consideration in such cases is whether such advertisement revenues are taxable under section 194C (which applies to contractor payments including for advertising) or section 194J (which applies to payments for managerial, technical or consultancy fees).

Section 194C applies to payments made for carrying out any "work". Advertising is specifically covered within the definition of "work". While the specific vs general rule should apply, it appears that such payments may be governed by section 194C of the Act, subject to the how the arrangement between the parties is documented.

Where the recipient (content aggregator) is a non-resident:

Over and above the comments highlighted above, it may be relevant to note that as per the OECD, if the website operator is provided with the right to display copyrighted material, the payment amounts to Royalty. Accordingly, any payment made to the owner of the copyright in the digital content by the provider for the right to display that content to its subscriber could constitute Royalty.

b. Tax implications in case of partnership/joint venture arrangements:

In the MVAS value chain, multiple parties come together to provide services to the users or innovative partnership/joint venture arrangements are formed where entities co-join under different operating structures. The venture could be formed whereby foreign and domestic parties may either come together forming a joint venture under an agreement or by way of forming a joint venture subsidiary. This joint venture arrangement/entity could be entered into in India or outside India. Typically, where ventures are formed with involvement of the foreign parties, there could be management and operational control issues.

In any of these circumstances, based on the particular arrangement entered into by these parties and if the arrangement fulfils certain conditions, there may be an exposure that this arrangement may be treated as an "Association of Persons" (AOP) and taxable as a separate entity.

Accordingly, an unincorporated consortium of members meeting certain essential conditions is accorded an independent status and is referred to as an AOP. There is no specific definition assigned to the expression AOP under the Act and therefore, whether an association, venture or consortium will constitute an AOP for the purposes of the Act would depend upon the facts and circumstances of each case, especially depending on how the rights and obligations inter se the parties are documented in the agreement/s entered into and how the parties conduct their operations.

Based on judicial precedents, following are some of the key cumulative criteria, amongst others, that go towards formation of an AOP (also see the negative list below):

- Association of two or more persons out of their own free will
- Intention to produce income jointly
- Joint and several liability resulting in the sharing of profits and losses, etc

It is not necessary that in the aforesaid circumstances (where all the above conditions are satisfied) an AOP is necessarily formed, as the issue would primarily depend on the facts, arrangements and conduct between parties in each case. Based on analysis of certain judicial precedents, the key criteria, amongst others, that dilute the exposure of an AOP are as under:

- No unity of management and control
- Independent and clearly demarcated revenue streams
- Separate and independent scope of work with preferably no overlaps
- Demarcated risks with respect to the scope of work undertaken by each member
- Clearly spelt out intention not to carry out common business venture, etc

Where there is a non-resident entity which is also a party to such an arrangement, there could be certain other complications. The tax residency of the AOP in such a case is independent of its constituent members. An AOP is treated as a tax resident of India even if a part of the control and management is in India. Thus, if a foreign/non–resident entity is a part of the partnership/joint venture arrangement, whether dominant or not, since part of the control and management could be in India, consequently, the AOP may be said to be resident in India. It is imperative that the exposure of forming an AOP is mitigated in case of all partnership/joint venture arrangements, since an AOP which qualifies as an Indian tax resident is taxable in India in respect of its worldwide income.

Further, depending upon whether the shares of the members of the AOP are determinate/known or not, if a non-resident entity is a member of an AOP, the entire income of the AOP may be taxable at the higher tax rate as applicable to foreign companies (i.e. base rate of 40%), even if one/more members are Indian resident companies/individuals whose income would otherwise have been liable to tax @30%/slab rates as applicable for individuals.

This coupled with issues like lack of clarity on whether an AOP is eligible to claim benefits under the tax treaty, carry forward of losses being allowed only to the AOP and not to members etc, make the AOP exposure, a one, which is definitely that needs to be mitigated where possible.

Similar issues could arise in relation to Joint Venture agreements entered into between parties to an arrangement. Over and above the above issues, there could also be certain Permanent Establishment issues (under the applicable tax treaties) that foreign joint venture partners may face in India that may need appropriate structuring and mitigating requirements, especially as the foreign joint venture partners may exert management and other control rights vis-a-vis the Indian operations.

c. Managed VAS:

A recent trend that is picking up in the VAS arena is the concept of "Managed VAS". Managed VAS model is a practice of transferring parts of or all of the VAS operations/functions including everyday management to another organization. It saves the mobile operators the hassle of dealing directly with a number of different VAS stakeholders offering abundant services.

Such arrangements could give rise to a set of tax issues like applicability of withholding tax rates, whether the payments would qualify as contractor payments or professional fee payments etc. There is a thin line of demarcation between the two. Every arrangement of this sort would have varied tax implications, which may need to be analysed and appropriate structuring may be needed.

d. Direct Taxes Code Bill, 2010 (DTC):

The DTC proposes to expand the definition of "Royalty" and "Fees for Technical Services". Amongst others, the definition of Fees for Technical Services now proposes to specifically cover 'payments for development and transfer of design, drawing, plan or software, or similar services'.

Thus, as regards payments for acquisition of standardised software for providing services are concerned, the same is also proposed to be covered within the ambit of Fees for Technical Services.

While the DTC is slated to be effective from 1 April, 2012, a revised and final draft Bill is awaited.

Indirect Tax Issues:

In case of VAS, the applicability of indirect tax varies for each type of transaction and the manner in which the entire transaction is structured. There may be permanent transfer of the copyright in the content developed by the developer, or only a simple transfer of right to use the content would take place. The major indirect tax applicable in this activity is service tax. In some of the activities, VAT is also applicable.

The charges recovered by the telecom operators for providing any VAS to the subscribers are subject to service tax. The content is developed by various content developers and provided to the telecom operators, who provide this content to their subscribers. In many cases, the content is provided to various websites, from where a consumer can download it through the telecom operator. The supply of content to the operator as well as the web sites in such cases is subject to service tax under the "development and supply of content service".

Due to growth in this sector, a whole new class of companies has emerged who do not develop the content on their own but procure the content from third parties and supply the same to the telecom operators or the web sites, namely, content

aggregators. Till now, the supply of content to aggregators was not subject to service tax unless provided via computer networks. With the introduction of the new category of service i.e. "copyright services", even the supply of content to aggregators by CD / DVD etc could attract service tax if it amounts to granting right to use copyrights.

Double taxation – Value Added Tax and Service Tax

The supply of content to aggregators on CD / DVD etc have Value Added Tax (VAT) implications also as transfer of right to use copyright is a deemed sale. There could be a dual levy of both, VAT as well as Service tax on the same transaction. This is against the principles laid down by the Supreme Court in the case of Bharat Sanchar Nigam Limited wherein it was held by the Supreme Court that one aspect of the transaction can be subjected to only one tax. In the case of supply of VAS, the same aspect of the transaction, i.e. supply of VAS attracts VAT as well as service tax.

Since the telecom operators would not be eligible to claim credit of VAT on procurement of VAS, the VAT levied becomes a cost to the telecom operators and it would be beneficial for the industry if the VAT is not levied on supply of VAS to telecom operators.

Goods and Services Tax

India is heading towards the introduction of Goods and Services Tax (GST), which is scheduled to be introduced with effect from April 2012. Since GST envisages subsuming most of the Central and State levies; it is anticipated that the issue of double taxation will be addressed suitably, giving the VAS and telecom industry a relief as the credits of taxes levied would be available across the value chain and it would not be a cost to any of the players in the industry.

About PwC Telecom Practice

PwC has the largest dedicated telecommunications industry group of any firm of business advisers. This Global Telecommunications Consulting Group comprises of professional staff world-wide who work full time on telecommunications projects. Members of our Global Telecommunications Consulting Group have worked in most of the world's market areas, including the Americas, Europe, Africa, the Middle and Far east and Australasia, and across all sectors of the industry including fixed, mobile, and value added network services. We have offices in 150 countries and throughout the world, to provide hands on support and local knowledge. All top 25 global communications players are provided services by PwC. About 1/3rd of the world's access lines are owned by the companies that we audit. We have served in over 60 major advisory roles in telecommunications privatization and/or restructurings.

PwC holds a pre-eminent position in the telecommunications sector, providing multi-disciplinary advice to the industry world-wide, covering privatization and restructuring, strategy, financial issues, service development, network infrastructure, industry structure, regulation, corporate reorganization and restructuring, and information technology. We have provided major consulting services for 18 of the top 20 global telecom players and have developed over 200 market entry strategies world-wide for telecom companies. PwC occupies unparalled Thought Leadership in the Telecom space.

In order to deliver innovative solutions to our communications clients, PwC invests in centres of excellence to understand, interpret, and address major industry issues. Our practice links over 6000 professionals serving the industry around the globe through these centres, facilitating collaboration and knowledge sharing and providing consistent, high-quality, seamless service to clients worldwide. These centres link professionals who can be called upon to challenge, advise and support you. We see our global reach as an enabler to support the development of your international operations and to build trust and create value for you.

Some highlights of PwC's Telecom Practice:

- Our regular clients generate over 70% of telecommunications revenue world-wide, and include 18 of the top 20 global telecom players across Europe, the Americas, the Middle East, Africa and AsiaPac.

- PwC has developed some of the largest knowledge harvesting models including global best practices, frameworks and Thought ware, which have helped number of client, achieve world-class processes.

- We produce periodicals and surveys that bring insight to questions, opportunities, and challenges faced by telcos. With a global circulation of over 18,000 and distribution in over 85 countries, PwC's quarterly journal for telecom executives is regarded as a "must-read." InfoComm Review showcases some of the best global practices and leading-edge thinking.

- PwC was the only Big Four firm to receive an overall 5 STARS rating. PwC achieved the world-class 5 STARS rating in four of the relationship categories assessed, more than any other firm. We achieved a 5 STARS rating in overall assurance services, overall business advisory services, knowledge of client's business, and expertise in client's industry

- PwC has been carrying out Annual GSM Cellular Benchmarking Study for Cellular Operators Association of India since the year 2000. The Study for the year 2007 included cellular service providers in various countries in Asia Pacific region and 62 operators from India and involved collecting, analyzing and reporting financial and operating data for various cellular operators in India and benchmarking them against the developed standards.

About CII

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the growth of industry in India, partnering industry and government alike through advisory and consultative processes.

CII is a non-government, not-for-profit, industry led and industry managed organisation, playing a proactive role in India's development process. Founded over 115 years ago, it is India's premier business association, with a direct membership of over 8100 organisations from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 90,000 companies from around 400 national and regional sectoral associations.

CII catalyses change by working closely with government on policy issues, enhancing efficiency, competitiveness and expanding business opportunities for industry through a range of specialised services and global linkages. It also provides a platform for sectoral consensus building and networking. Major emphasis is laid on projecting a positive image of business, assisting industry to identify and execute corporate citizenship programmes. Partnerships with over 120 NGOs across the country carry forward our initiatives in integrated and inclusive development, which include health, education, livelihood, diversity management, skill development and environment, to name a few.

CII has taken up the agenda of "Business for Livelihood" for the year 2010-11. Businesses are part of civil society and creating livelihoods is the best act of corporate social responsibility. Looking ahead, the focus for 2010-11 would be on the four key Enablers for Sustainable Enterprises: Education, Employability, Innovation and Entrepreneurship. While Education and Employability help create a qualified and skilled workforce, Innovation and Entrepreneurship would drive growth and employment generation.

With 64 offices and 7 Centres of Excellence in India, and 7 overseas in Australia, China, France, Singapore, South Africa, UK, and USA, and institutional partnerships with 223 counterpart organisations in 90 countries, CII serves as a reference point for Indian industry and the international business community.

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About MIT School of Telecom Management

Indian Telecom market is one of the fastest growing markets in the world, providing huge potential in this booming sector across the globe having Network Operators, Infrastructure Companies, Telecom Billing Companies, Enterprise Solutions, VAS providers and service providers as its verticals this field provides ample opportunities for business and research.

Thus to prepare world class Techno Savvy business leaders of tomorrow.
MIT School of Telecom Management "A symbol of academic excellence"
has endeavored in the field of Telecom Education and research to guide, motivate and stimulate youngsters for pursuing their glorious careers in this booming sector.

MITSOT is one of the leading AICTE approved telecom institute offering PGDM in Telecom Management and MBA in Telecom Systems and Marketing.

MIT Pune's MIT School of Telecom Management (MITSOT) is an integral part of MAEER'S MIT, a pioneer in quality unaided higher education in Maharashtra. MAEER was established by Prof. Dr. Vishwanath D. Karad in 1983 to meet the need for a centre of scientific and educational research and engineering training. It now covers 65 institutions delivering KG to
PG education to 65,000 students. This multi-campus, multi- disciplinary institute has been contributing to the industrial and economic development
of our society and country for the last 27 years, and is poised to grow along with the times.

MITSOT backed by the industry, blends the technical & managerial skills of professionals to create future managers and entrepreneurs in telecommunications. As in case of many other institutes of MAEER, MITSOT, established in 2007, is a leading institution in the country in the area of telecommunications and "ICT" as an inclusive growth. It attracts the brightest students in the country and also caters to the rural students.

The PGDM and MBA, is a two-year full time course designed for experienced telecommunication technical professionals, seasoned managers as well as fresh graduates.

MITSOT produces well-groomed professionals who are fully prepared for the "Real World" demands of Telecom business, Industry, Government and Life in General. Think of it as a perspective changing transformational experience.

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About PwC

PwC firms provide industry-focused assurance, tax and advisory services to enhance value for their clients. More than 161,000 people in 154 countries in firms across the PwC network share their thinking, experience and solutions to develop fresh perspectives and practical advice. See pwc.com for more information.

In India, PwC (www.pwc.com/India) offers a comprehensive portfolio of Advisory and Tax & Regulatory services; each, in turn, presents a basket of finely defined deliverables. Network firms of PwC in India also provide services in Assurance as per the relevant rules and regulations in India.

Complementing our depth of industry expertise and breadth of skills is our sound knowledge of the local business environment in India. We are committed to working with our clients in India and beyond to deliver the solutions that help them take on the challenges of the ever-changing business environment.

PwC has offices in Ahmedabad, Bangalore, Bhubaneshwar, Chennai, Delhi NCR, Hyderabad, Kolkata, Mumbai and Pune.

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