Deloitte.

ASSOCHAM

Mobile Value Added Services (MVAS) - A vehicle to usher in inclusive growth and bridge the digital divide

January 2011

www.deloitte.com/in

Contents

Message from Chairman, TRAI

Dr. J. S. SARMA (IAS)
Chairman
Telecom Regulatory Authority of India

Mahanagar Doorsanchar Bhawan,
Jawahar Lal Nehru Marg,
(Old Minto Road), New Delhi-110002
Tel. Off. : (91-11) 23211236
(91-11) 23213409
Fax : (91-11) 23236026
e-mail : cp@trai.gov.in

I would like to compliment the ASSOCHAM for bringing out a Study Report on **Mobile Value Added Services – A Vehicle to Usher in Inclusive Growth and Bridge the Digital Divide in India.**

Mobile Value Added Services (MVAS) have assumed significant importance in recent times due to the rapid growth in wireless subscriber base. They have enhanced the utility of mobile phone as a powerful medium to deliver information viz., News, Entertainment, Advertisement, Music, Games, Commerce, Education and Health. Simultaneously, they help the service providers in generating new revenue streams as also the consumers in receiving the benefits of personalised applications.

I am sure that the analysis and inputs given by the ASSOCHAM in the Study Report will be useful in framing suitable policies with regard to MVAS.

(J.S. Sarma)

Message from President, ASSOCHAM

The biggest challenge confronting our corporate and our country perhaps is maintaining sustainability- economic, social and environmental, in ways that contributes to developmental growth. At the same time, this is a unique opportunity to realign with forces that are shaping our future, especially digital technology that has the ability to empower people, even in remote corners of our country. ASSOCHAM is committed to move forward with such rapid changes in technology, consistent with our goal of "Making Inclusive Transformation Happen". It is my firm belief that digital inclusion has the ability to take the trajectory of high growth to one and all and sculpt the future for equitable development.

The last decade witnessed a ring tone revolution in the country. The upcoming decade would usher in an "information tone revolution". To give a concrete direction to our effort, ASSOCHAM jointly with Deloitte has undertaken the study on Mobile Value Added Services with an objective to identify key elements and parameters that could facilitate an optimum ecosystem to support entrepreneurship.

Mobiles today have began to replace roads in our country. While we build the basic amenities and physical infrastructure in our country, we have a huge opportunity to strengthen and leverage the digital infrastructure being built in our country. There is immense scope to develop Utility MVAS services in the country that will bring M-education, M-health, M-banking, M-governance, M-agriculture and other mobile services through digital highway to all sections of our population.

The key is to identify constraints that may restrict the development of MVAS services and put in place a conducive policy framework and supporting infrastructure for MVAS services to grow and reach all corners of the country. Since the sector requires high investment with long gestation periods, it is crucial that the sector be given an 'industry status". We hope that in the coming months all stakeholders- MVAS providers, operators and the government, will be able to work towards creating a sustainable and buoyant MVAS industry.

I look forward to an ecosystem that will lead to generation of new "digital entrepreneurs" that will work towards building solutions not only to address our national challenges but also global challenges.
I hope all stake holders will use this report which will serve as useful input to move our country towards becoming a digital tiger.

Dilip Modi
President, ASSOCHAM

Message from Secretary General, ASSOCHAM

It is an honour for ASSOCHAM, the country's "Knowledge Chamber", to have undertaken a study on "Mobile Value Added Services (MVAS) – A vehicle to usher in inclusive growth and bridge the digital divide" with inputs and guidance from Telecom Regulatory Authority of India (TRAI). It is indeed a reflection of the contribution made by ASSOCHAM and its Members in forwarding meaningful policy input to the Ministry of Communication and Information Technology and Telecom Regulatory Authority of India (TRAI) from time to time.

While the computer and internet empowered urban India, we believe that it is the mobile which is impacting the common man in the hinterland and the far flung areas of the country. Mobile phones are certainly the solution for bridging the digital divide and therefore make it the perfect medium for delivering a variety of services and content to the common man through Mobile Value Added Services.

Through Mobile Value Added Services, we can achieve digital empowerment and inclusive growth through for example information based services across the country benefiting even the farmers in the remotest villages. We expect that this study will be a step towards acknowledging and recognizing the importance of Mobile Value Added Services in the country and hope that Telecom Regulatory Authority of India (TRAI) will also extend its support and encouragement to Mobile Value Added Services.

I would like to acknowledge the guidance provided by the Chaiman, Telecom Regulatory Authority of India (TRAI), officials from various ministries and organizations and the efforts made by the Deloitte and ASSOCHAM team in making this study more meaningful.

D S Rawat
Secretary General, ASSOCHAM

Message from Deloitte

The growth seen by the Indian mobile telephony sector over the last decade has been nothing short of extraordinary, particularly in its ability to be a great leveler in voice communication access to most sections of the population. The industry today stands on the cusp of another revolution called Mobile Value Added Services (MVAS). MVAS, hugely popular for music, entertainment, gaming and other similar services, have the potential to be used in areas which help bridge the digital divide and foster inclusive growth in India. Such services are referred to as 'Utility MVAS' and are the focus of this report.

Excited about the potential and confident of its game changing ability, Deloitte has partnered with ASSOCHAM to undertake this study on MVAS in India, particularly Utility MVAS. Deloitte's Telecom, Media and Technology (TMT) Consulting India Practice has leveraged its international network and in-built experience in the Indian TMT Consulting Practice for this study. Extensive primary research was carried out both within India and across the globe from Japan to Kenya to Canada with viewpoints from diverse entities viz. the corporate world, Government representatives, economists, players across the MVAS value chain. Additionally, secondary research and in-depth analysis have been conducted to envisage the way forward for growth of Utility MVAS in India. While it is evident that mobile phones can be a powerful channel to deliver essential information and services to the citizenry via the government and private players, there are also some fundamental challenges that need to be addressed. This report has an action item for every stakeholder involved in the delivery of Utility MVAS to contribute to its growth in India. We hope that all stakeholders, including TRAI and the Government ministries, extend their full support and co-operation to Utility MVAS in India.

We thank all participants for their contributions, including TRAI and ASSOCHAM without which this report could not have been as comprehensive.

Sachin Sondhi
Senior Director and Leader, Strategy & Operations Consulting, Deloitte

Objective & Methodology

The mobile phone is coming of age as it becomes an integral part of our life, and its application extends from basic voice calling to instant messaging, calculator, mini-camera, music player to an internet ready, application driven computing system. While the reach of the mobile phone is a force to be reckoned with and its potential to deliver services is immense, the range of services currently being offered in the Indian market is certainly limited. However, the plethora of needs, from health and education to financial inclusion and governance, that it can serve are unlimited.

In this context, this study seeks to understand the current and future state of Mobile Value Added Services (MVAS) in India alongwith some of the key drivers, challenges, and solutions which can spur the growth of the ecosystem. The study further delves into the potential of MVAS to enhance the quality of life and standard of living for major sections of the Indian populace, including the effective and efficient delivery of government services.

Methodology

Deloitte Touche Tohmatsu India Private Limited (hereinafter referred to as Deloitte in this paper) and ASSOCHAM undertook primary and secondary research for this study. Deloitte and ASSOCHAM spoke with various stakeholders across the MVAS value chain in India viz. OEMs, content originators, content aggregators,technology enablers, telecom operators,Telecom Regulatory Authority of India (TRAI) etc. and relevant countries to gather information towards the following objectives:

- Understand the current state and future outlook of the MVAS industry,
- Identify issues and challenges,
- Determine the support required from key industry players, and
- Determine policies for the enablement of the relevant services, and study relevant global best practices

Executive Summary

Poised for rapid economic growth, India still lags behind on key development indicators such as basic health and education facilities. In order to promote and expedite inclusive growth, India can use mobile technology, Mobile Value Added Services (MVAS) in particular, to deliver these services. This paper demonstrates the acute need and the rationale for doing so through an analysis of the country's needs, market dynamics for MVAS in India, and a study of global best practices and case studies. Lastly, it also talks about some of the challenges the MVAS industry faces, and steps that need to be taken by the regulatory authorities and the industry players to fulfill the potential of MVAS to reach the Indian citizenry with basic services in an effective and efficient manner.

As the telecom industry sees a rapid decline in voice tariffs, it is looking at services beyond standard voice calls, or Mobile Value Added Services (MVAS) to propel it to the next level of growth. With mobile penetration expected to go up to nearly 100% by 2015[1] , and the advent of 3G, MVAS revenues are expected to grow to approximately Rs. 48,000 crores[2] . The industry is looking at various means to use MVAS as a growth driver and simultaneously as a key differentiator. While today, non-voice revenues in India only account for about 10% of an operator's revenues, the global average for leading MVAS countries is far higher, pegged at approximately 23%[3] . The focus of the industry, so far, has been infotainment MVAS, but there is much discussion around other services which have a greater growth potential, and currently may not even exist. **Some of these services are those in the 'Utility MVAS' category: Mobile Value Added Services (MVAS) which seek to digitally empower citizens by providing efficient access to essential information and services and foster inclusive growth.**

The key drivers for Utility MVAS include: (1) Government mandate for inclusive growth (2) Increasing mobile phone, and network penetration (3) Need for differentiation among telecom operators and device manufacturers (4) Increasing consumer demand and awareness, even in non-urban areas (5) Business need of service providers such as hospitals and banks (6) Automation due to Information and Communications Technology (ICT)

An analysis of Utility MVAS revealed broadly three kinds of services: (1) Information based services which usually involve one way dissemination of information such as epidemic alerts, disaster management updates, etc. (2) Application based services which have a level of interactivity, and require the consumer to play an active role such as checking the status of payments, IVR based language training services, etc. (3) Enablement services which include services forming a close substitute of those provided by a physical infrastructure such as a bank or a school. These services usually involve transactions such as person-to-person payments, travel reservations etc.

All the three types of services mentioned above are present in multiple categories. Based on a study of existing services in various parts of the world, and current needs of the country, there appear to be four focus categories:

M-Commerce

Services consisting of payments, banking, and retail transactions over the mobile phone such as person-to-person payments, bill payments etc. Internationally, M-PESA in Kenya is a great success story where remittance services offered by Vodafone and Safaricom are being utilized by approximately 27% of the

1 TRAI projections

2 ASSOCHAM Financial Pulse Study – Emerging Landscape in Mobile VAS Industry, June 2010

3 IAMAI Paper; BWA – Analyst Presentation (Reliance Industries Limited, June 2010); average of Singapore, USA, China, Japan, Korea, UK, Germany, Italy

population, monthly transactions are over $375 Mn. and users save up to $3 per transaction . In India, players such as Spice, Oxicash, MChek, NGPay, ICICI's iMobile are already offering some services in this area but these are mostly restricted to information services, and some basic applications such as bill payments to select billers. However, there is plenty of activity evolving in this area in India, on the regulatory and industry front. The RBI is contemplating regulations to promote M-Commerce, without compromising on security, and also devising a payments infrastructure to enable delivery of banking services to a larger section of society with the help of the National Payments Corporation of India (NPCI). Thus, M-Commerce has the potential to promote financial inclusion and foster economic growth for large sections of the Indian society, if all key stakeholders work together effectively.

M-Education

Services consisting of training and learning related content, both in the sphere of formal education and non-formal and vocational training through mobile applications using SMS, WAP, USSD etc. While most companies in India are largely focused on corporate learning or providing examination alerts for major public examinations, there is tremendous scope for services such as language training (text, audio, and interactive), mobile reading, broader adult literacy and vocational training on specific subjects. In India, Spice, EnableM, Deltics, GCube Solutions, Tata DoCoMo are some of the players in this area. Some countries such as South Africa have also adopted the mobile phone as an integral part of the education system as it provides a platform to support and enable the curriculum, providing self-tutorials, and interactive tutorials to children in subjects such as Maths (for example, the Dr. Math initiative in South Africa, launched on a social networking platform called MXit has seen tremendous popularity with the South African teenage population). In India, education is an area where the Government can take an initiative to put together a large scale mobile education program, and private players can also look at potential areas of key consumer need, especially in non-formal and adult education in order to harness the potential of M-Education in the country.

M-Health

Services which use mobile devices to deliver health solutions such as health alerts, updates, and patient monitoring systems. M-Health is in a very nascent stage in India today but some of the healthcare service providers and telcos such as AIIMS, Maestros Mediline Systems, Apollo Hospitals, Aircel see a tremendous opportunity in the use of mobile applications for service delivery as powerful applications can help to increase productivity and efficiency of their staff members, and also increase their ability to reach patients. For example, an initiative being undertaken on a small scale currently is teleradiology which enables physicians to view high resolution X-Ray reports on their smart phone screens and instantly send back reports. This is an example of a relatively advanced application based service. Even simpler services such as information based services which spread education and awareness around chronic diseases using simple IVR or SMS technology have been found to be tremendously effective in countries such as South Africa (for AIDS), Mexico (for heart disease). Governments such as the UAE government have a Health Authority which focuses on using technology to collect data, send out reports, and provide instructions and health guides to all citizens. As public health is a key development indicator for the Indian government, it could also similarly look at an overarching M-Health initiative.

M-Governance

Services which involve the strategy and utilization of all kinds of wireless and mobile technology services, applications, and devices for improving the delivery of effective government services for all citizens. In India, Bihar and Kerala are pioneers in the field of M-Governance. The Bihar Government is using an SMS based system to monitor performance of various schemes across districts. Kerala is planning to use mobile technology as an enhancement to its existing e-Governance platforms. Other governments such as Goa are also planning to deploy M-Governance services. Globally, governments in countries such as China, Dubai, Hong Kong, Singapore, and Malaysia have deployed M-Governance services from basic information based services such as natural disaster alerts to enabling polls through mobile phones. There are many global examples of effective M-Governance services and India can draw from these examples to devise an 'always-on' governance system, which has the ability to connect and provide services to all citizens more effectively, efficiently, and on a real time basis.

Thus, there is plenty of scope to develop and deploy Utility MVAS services in the country. However,

While there are plenty of challenges that face the Utility MVAS space today, the opportunities are tremendous, given the mobile phone's growing reach and the advancement of technology including the foray of 3G.

interactions with players across the MVAS value chain bring to the fore various challenges. These challenges result from non-fulfillment of the critical success factors for industry growth: (i) Policy Framework (ii) Support Infrastructure (iii) High Equilibrium Ecosystem. While the policy framework sets boundary and gives direction, the support infrastructure provides the critical base required for the ecosystem to be built. There are certain key challenges under each of these groups which are impediments to the growth of Utility MVAS.

Policy Framework: Utility MVAS suffers from the lack of recognition for MVAS providers as an industry, as also the lack of guidelines for various value chain players. There is also an absence of a government initiative to ensure that the benefits of Utility MVAS accrue to Indian citizens in full measure.

Support Infrastructure: Adequate network coverage across the country and penetration of mobile phones in non-urban areas is a critical requirement. Additionally, robust security and payments infrastructure are also required for the rollout of complex enabling services which involve authentication and transactions.

High Equilibrium Ecosystem: At present the ecosystem lacks cohesiveness which is necessary to promote value creation for all. This has largely resulted from inequitable revenue share for MVAS providers and lack of transparency around usage/billing data. Presence of these challenges also has an adverse impact on innovation which is key to the growth of the industry, and creation of value for consumers and stakeholders. Moreover at an operational level, the ecosystem deals with many issues such as ensuring relevance and affordability of the service, appropriate partnerships and marketing. Utility MVAS services are by and large high investment and gestation services. They also require deep collaboration between operators, MVAS providers, and the government. At a ground level, these are significant challenges.

Thus, in order for the success of Utility MVAS, it is imperative that the government / regulatory authorities lay down a vision, and a set of guidelines to provide the industry with direction. The government should also look at MVAS as a serious vehicle to hasten the process of inclusive growth, and thus identify priority areas for which funds need to be allocated, and initiatives need to be undertaken, specifically in the areas of governance, health, and education. Many lessons can be learnt from global success stories across the world in order to deploy successful initiatives in these areas.

The government also needs to look at framing a policy which encourages the aggressive roll-out of required network and device infrastructure on an extensive basis to truly attain scale for Utility MVAS. The government can also play a role in fostering innovation, and setting guidelines around transparency and other best practices to promote an equitable ecosystem.

The industry should look at best practices across the world and examine opportunities in the Utility MVAS space closely to identify various business models . The advantage of looking at these greenfield areas is a potential competitive differentiation, ability to generate new streams of revenue, and garner customer loyalty. While the gestation period for some of these services maybe long, looking at business models where there is an opportunity to offer affordable, as well as, scalable services maybe the way to go. E.g., Nokia Life Tools which charges farmers a price lower than the system cost for the farmer to procure mandi[5] information, and is sustainable for the service provider.

Thus, in conclusion, while there are plenty of challenges that face the Utility MVAS space today, the opportunities are tremendous, given the mobile phone's growing reach and the advancement of technology including the foray of 3G. It is only a matter of the government and the industry coming together to create a win-win situation for the industry and the consumers.

5 Refers to the farmers market in India, where farmers from nearby villages trade goods / fresh produce

Introduction

- India is a country of a billion plus people with needs spanning across basic hygiene and sanitation, clean drinking water, basic healthcare, primary education to adequate housing, roads, higher education, banking facilities, disease control, and disease management. Each problem is exacerbated by its sheer magnitude. Today, we still struggle to disseminate basic banking, health, and education services to large segments of the population. (Refer Table 1).

- To reach a billion plus people and ensure equitable distribution of basic amenities and services is a difficult proposition given the geographical spread and disparate levels of infrastructure development. However, the ability to fulfill key needs of the citizens is also a minimum requirement for propelling growth and development in the country. In this age, technology is a great enabler for growth, which cuts across all sections and strata of society. India has the opportunity to take its growth story to the next level and achieve a sustainable basis by leveraging technology to the fullest.

- In today's world, instantaneous exchange of various forms of data has enabled services from education to healthcare inspite of limited physical access to service providers and physical forms of data. With the rapid

Table 1: Reach of different modes to end users in India (2009): Touch points / '000 (population)

▶ Institution ▼ Country	Banks	Doctors	Schools*
US	0.32	12.5	70.4
Germany	0.55	11.5	70.5
South Africa	0.08	4.9	28.1
Kenya	0.04	1.3	25.3
Singapore	0.14	5.9	37.8
Japan	0.13	11.6	52.2
Sri Lanka	0.1	2.3	44.4
Bangladesh	0.05	0.6	19.7
India	0.07	1.9	24.9

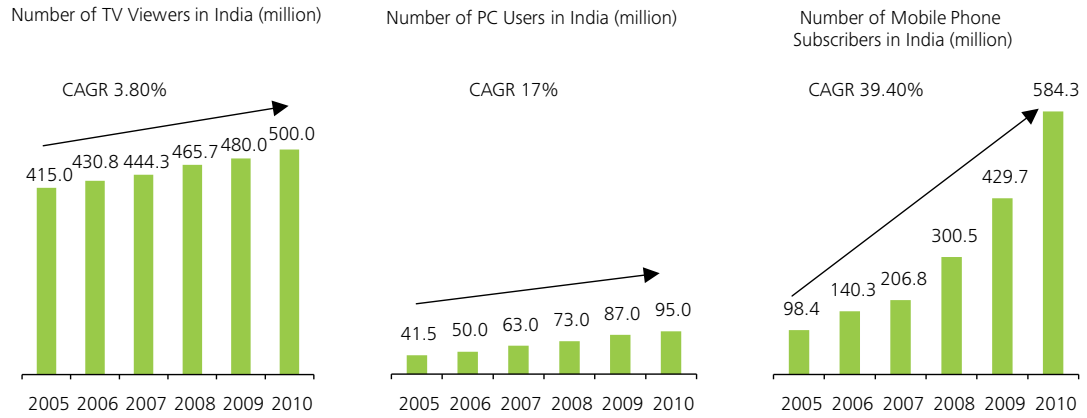
*In this case it is teachers per 1000 students as of 2005-06

Source: RBI, Financial Access 2010-CGAP,World Health Statistics 2010-WHO,CIA World Fact Book, UNICEF, Government of Germany, Government of Singapore, UN Country Wise Statistic, Nationmaster

spread of mobile technology there is hope that some of these basic services can thus be provided to a far greater number of people at an expedited pace.

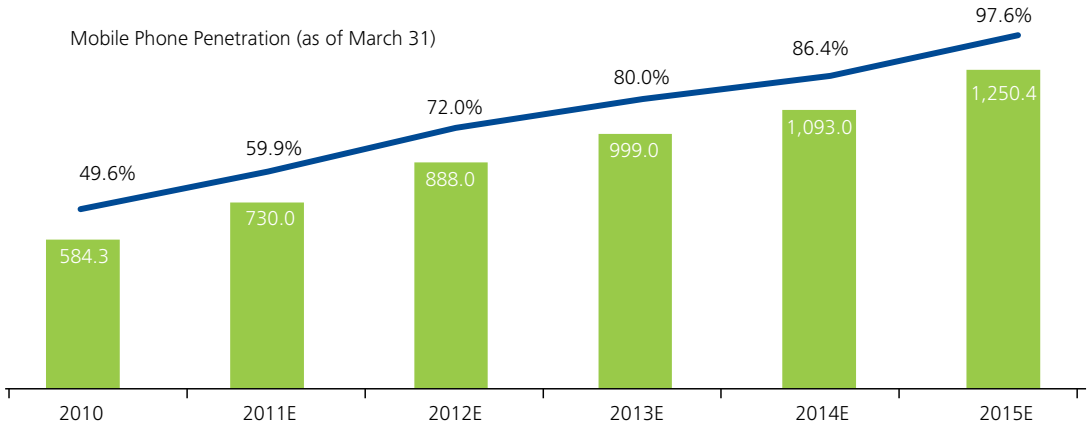
- There is no doubt that the mobile phone is the technology product that has touched the highest number of Indians to date. While the television screen dominated our lives for the longest time, and the PC and the internet empowered urban India to take its place on the global business stage, it is the mobile phone that Indians have taken up with gusto (Refer Figure 1). With 600 Million+ subscriptions far surpassing all forecasts and estimations, the mobile phone has become ubiquitous in the country. These numbers are expected to grow even further going up to nearly 100% penetration in the next 5 years (Refer Figure 2).

Figure 1: Size & Growth of Various Screens in India



Source: TAM, IAMAI Report, Economic Times, TRAI, IAMAI-IMRB Survey
Note: India had approximately 670 million mobile phone subscribers in August '10

Figure 2: Mobile Phone Penetration in India



Source: TRAI

The reach and penetration of mobile phones can ensure the delivery of a large number of services in a cost effective, fast and seamless manner even without physical access, as is seen from such initiatives around the world.

- This phenomenon can be a significant driver for growth and development in India. According to a World Bank study[6] there is a positive correlation between the level of physical access and socio-economic development. Mobile phones have been an innovative answer to bridging the distance.

- The reach and penetration of mobile phones can ensure the delivery of a large number of services in a cost effective, fast and seamless manner even without physical access, as is seen from such initiatives around the world. With the advancement in technology, even mobile phones at the lowest price points today can support powerful applications which empower the user in a variety of ways, from exchanging information via SMS, accessing entertainment based services to checking bank account details, crop prices, receiving personalized health alerts and obtaining vocational training.

This makes mobiles phones the perfect medium to deliver a variety of content and services, or as referred to in popular parlance – Mobile Value Added Services (MVAS) - to the Indian population.

6 Rural Access Index: A Key Development Indicator, 2006

What is MVAS?

MVAS includes all services provided to the end-customers beyond standard voice calls.

In this definition, Person to Person (P2P) Short Messaging Service (SMS) is also included as a part of MVAS, however, they're now considered as a minimum requirement for mobile phone operators. Dominant categories within the Non-SMS services include ring tones, music and entertainment, gaming, and mobile browsing.

Dominant categories within the Non-SMS services include ring tones, music and entertainment, gaming, and mobile browsing.

Figure 3 : Prevalent Themes in MVAS

M-Infotainment

- Entertainment content focused on current trends in media, Bollywood, etc. delivered to the user through music, mobile TV, gaming, books, etc.
- Examples of existing players:
  - OnMobile
  - Spice
  - Hungama Mobile
  - Mauj
  - Onyx Mobile
  - Rediff Mobile India
  - UTV new media

M-Connectivity

- Communication related applications for audio, video, communication, integration with social networks, etc.
- Examples of existing players:
  - Nimbuzz
  - Facebook
  - LinkedIn
  - Spice
  - Tekriti Software

M-Enterprise

- Business related applications for mails, ERP solutions, corporate utilities, etc.
- Examples of existing players:
  - One97 Communications
  - Earlysail
  - Spice
  - RIM (blackberry)
  - Nokia (mail for exchange)
  - IMI Mobile

M-Commerce

- Retail, banking, and transactions over the mobile phone
- Examples of existing players:
  - Spice
  - Oxicash
  - mChek
  - NGPay
  - ICICI's iMobile

M-Health

- Mobile Health or M-Health is the use of mobile devices in health solutions such as personal apps, patient monitoring systems, updates and alerts, etc.
- Examples of existing players:
  - AIIMS
  - Apollo
  - Dr. Batras
  - Maestros Mediline Systems

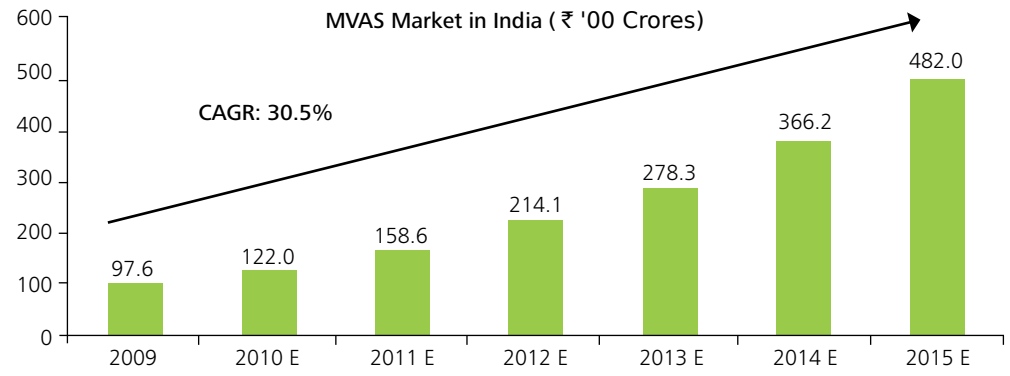
M-Education

- Training and learning related content for organizations, educational institutions, etc. pushed to users through mobile applications over SMS, WAP, USSD, etc.
- Examples of existing players:
  - Spice
  - EnableM
  - Deltics
  - G Cube Solutions

Source : Primary interviews, Secondary research

The Indian Mobile Value Added Services (MVAS) industry is estimated to grow to ₹ 48,200 crores by 2015 from the current estimated size of ₹ 12,200 crores (Refer Figure 4).

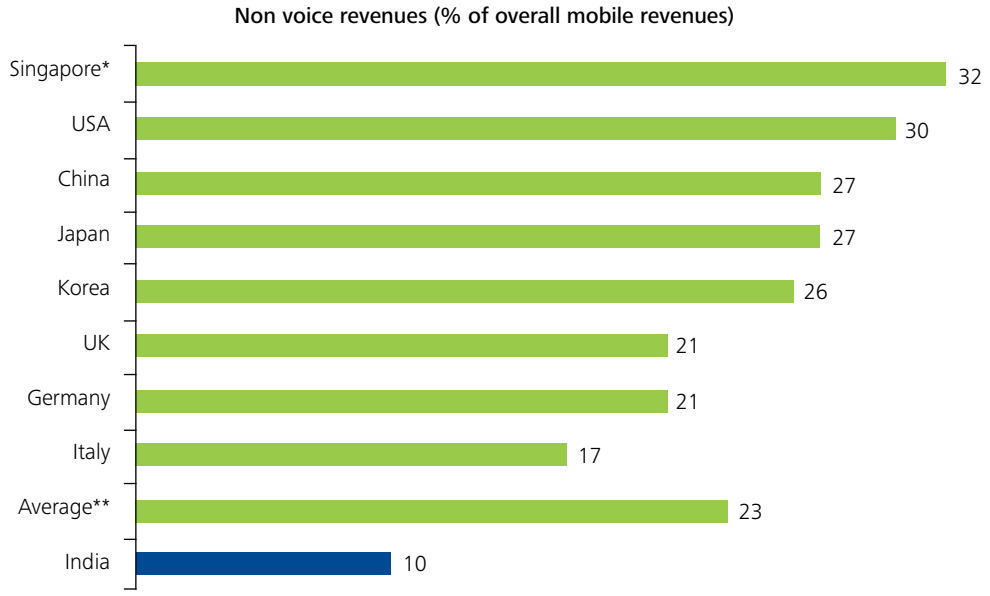
Figure 4: MVAS Market in India



Source: ASSOCHAM Financial Pulse Study – Emerging Landscape in Mobile VAS Industry June 2010

- Non-voice revenues currently constitute about ~ 10% of revenues of Indian telecom operators. A comparison with other countries (Refer Figure 5) indicates an average of ~23%, providing large scope for growth of MVAS in India.

Figure 5: Non-voice revenues across countries



Source: IAMAI Paper, BWA – Analyst Presentation (Reliance Industries Limited), June 2010
* Based on non-voice revenues of SingTel
** Average of the above shown countries (total/number of countries)

- Telecom operators, who have made heavy investment commitments to the tune of ₹ 67,000 crores collectively in 3G spectrums[7], and will need to make further investments in setting up the network infrastructure for 3G, are looking to the MVAS market to enhance their ARPUs in the next few years.

7 Secondary research

"We are looking to partner with application developers for more individualized and unique applications in the utilitarian segment to launch with the roll-out of 3G" – Co-Founder, Micromax

- While this predicted growth is mainly expected to be in high speed data services such as mobile TV, video calls, the MVAS market can be expanded further by looking at providing services to the emerging subscriber base.
  - The next wave of growth in subscriptions will come from semi-urban and rural areas. Today the penetration of mobile phones in urban areas is already ~ 100% while in rural areas it is only ~23%.[8]
  - This emerging subscriber base has many unmet needs, and some of the services could include providing real time agriculture information, banking services, and delivery of educational content. In India, and across the world, services in these areas have seen success such as Nokia's Life Tools for agricultural information and Safaricom's remittance service called M-PESA in Kenya.
  - Thus, there is economic and social benefit in looking at some of the emerging MVAS services which can optimally use mobile technology as a great socio-economic leveller, and driver of growth for India, as also rejuvenate the highly competitive and pressurized telecommunications market.

This paper focuses on how mobile phones can be used to deliver content and services that can help foster inclusive growth in India by digitally empowering citizens across all cross-sections of society, both urban and rural – This paper refers to these services as Utility MVAS.

8 TRAI Annual Report 2009

The next wave of growth in subscriptions will come from semi-urban and rural areas. Today the penetration of mobile phones in urban areas is already ~ 100% while in rural areas it is only ~23%.[8]

What is Utility MVAS?

Mobile Value Added Services (MVAS) which seek to digitally empower citizens by providing efficient access to essential information and services, and foster inclusive growth can be classified as 'Utility MVAS'.

Digital empowerment

Digital divide is a term commonly used to refer to the gap between people with effective access to digital and information technology and those with very limited or no access at all. It includes the imbalance both in physical access to technology and the resources and skills needed to effectively participate as a digital citizen.

While previously this was a huge challenge, with the advent of mobile phones, and the rapidly falling prices of both the device and the service, Indians across the country have greater access to technology.

Today, the divide is not so much digital: The real divide lies in access to amenities, services (including quality of services), and infrastructure. Technology has the power to transcend barriers of time, place, and socio-economic class to provide these basic services such as health, education, governance and financial services in a cost effective, uniform, efficient, and real time manner to rural, as well as, urban citizens, economically disadvantaged and upwardly mobile citizens. This process of efficient and equitable access to services can be termed as 'digital empowerment'.

Inclusive growth

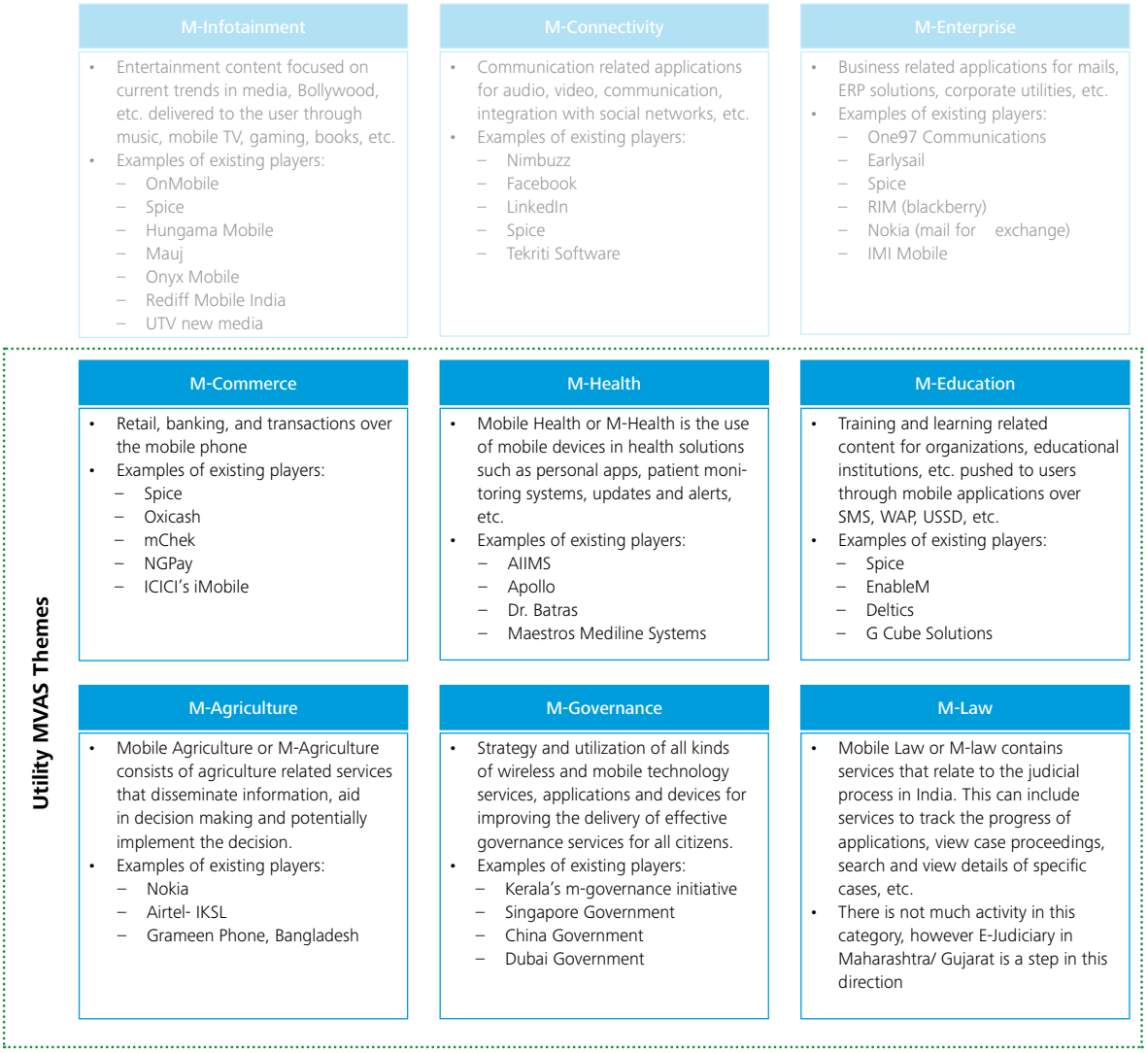
Inclusive growth refers to economic development which occurs at a sustained and uniform pace and pattern across various cross-sections of the population. While by its very definition this implies a stress on the growth of the more economically disadvantaged sections of society (in order to attain an even pace of development), it also seeks to include new initiatives that effectively enable uniform delivery of basic services across all socio-economic classes.

Governments and private enterprise need to focus on inclusive growth in order to ensure that the economic growth of the country is sustainable. From the government's perspective the use of MVAS for the efficient and effective delivery of necessary services such as health, education, governance and banking to all sections of society will help accelerate the pace of economic development. From the perspective of the private sector, looking at MVAS services to foster inclusive growth not only presents new growth avenues for the industry, but also, shows a longer term vision of enabling more sections of society to participate in broad-based economic growth.

Key categories in Utility MVAS

Utility MVAS, as per the definition earlier, consists of various categories. While some of these categories such as M-Commerce, M-Health and M-Education have already gained some traction in mainstream MVAS, there are other emerging categories in this space such as M-Agriculture, M-Governance and M-Law (Refer Figure 6)

Figure 6: Utility MVAS Themes

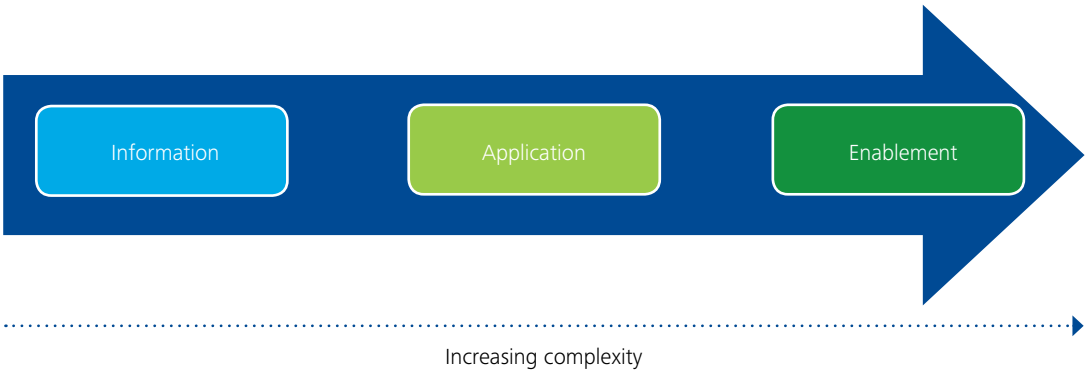


Source: Primary research/ interviews

A Framework for Utility MVAS

Utility MVAS services can be divided into three types of services. Complete utility of mobile phones for any category is not realized unless all three types of services are provided on the mobile phone. These three types, in order of increasing complexity are: Information Based Services, Application Services and Enablement Services.

Figure 7: Utility MVAS Framework



Information Based Services are primarily those services in which the mobile phone is used to disseminate information to the public at large. The consumer plays a passive role in information based services. E.g., Epidemic Alerts, Disaster Management updates etc.

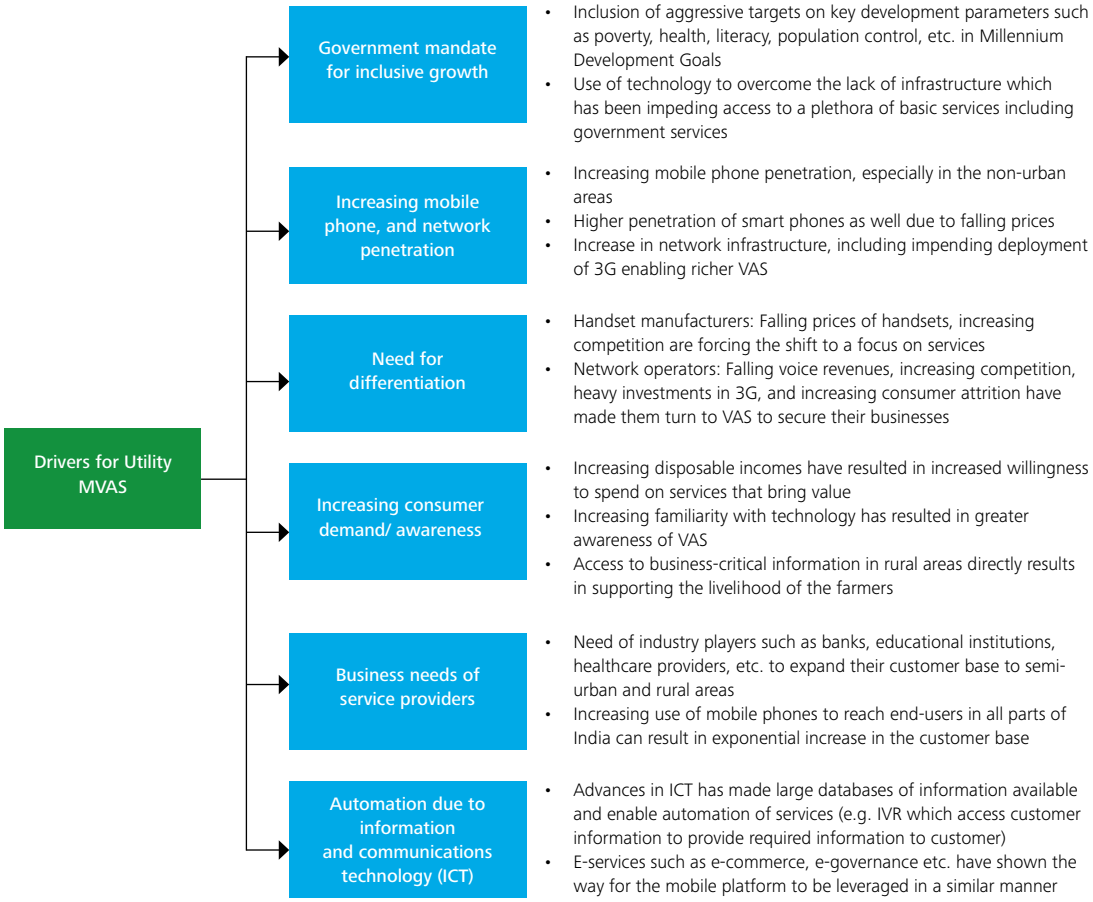
Application Based Services are primarily those services which have some level of interactivity and entail the end users (subscribers) playing an active role to consume the service E.g., Checking status of payments, Language training on the mobile, etc.

Enablement Based Services are primarily those services that enable the mobile phone to deliver services almost similar to those provided through a physical infrastructure. In this category, the mobile phone forms a close substitute of the physical channel available for delivery of the service E.g., Person-to-person payments. In most cases, these types of services would require an enhanced safety mechanism, including highly secure encryption technologies.

Drivers for Utility MVAS

In today's economic and developmental context, there are many factors which together make a strong case for pushing Utility MVAS in the country. Some of these key growth drivers for Utility MVAS have been discussed below:

Figure 8: Drivers for Utility MVAS



Source: Primary interviews, Secondary research

Government mandate for inclusive growth

- The government has set itself aggressive targets around some key development parameters such as poverty, public health (including the reversal of major diseases such as malaria and AIDS, women and children's health), literacy, and, controlling birth rates as part of the Millennium Development Goals.

- The National Employment Guarantee Act, Sarva Siksha Abhiyan, Total Literacy Campaign of the National Literacy Mission, 73rd and 74th constitutional amendments providing reservation for women, commitment for women empowerment in the National Common Minimum Programme (NCMP), National Health Mission, Total Sanitation Campaign and Bharat Nirman are some of the important steps taken by the Government which will help in achieving the Millennium Development Goals. Unfortunately, many of these programs are not progressing rapidly enough to meet the Millennium Development Goals.

- Overcoming the problem of access, which is currently a lack of physical infrastructure, has been seen as a huge reason for poverty. This can be overcome innovatively through the use of technology.

9 TRAI

Increasing mobile phone and network penetration

- Subscriber base has increased by ~35% between March 2009 and 2010 with an even higher increase in low end subscribers and in rural areas.[9]

- At the same time, handsets are also becoming 'smarter' as the consumer demand for access to applications and services increases - the high end of today is the low end of tomorrow; there has been an increasing drive from manufacturers as well as operators to introduce smarter phones at more affordable prices. Initially, the 3G rollout is expected to be more focused in urban areas - therefore the uptake of 3G services will be concentrated among urban subscribers, but with increasing coverage in rural areas the uptake among rural subscriber will pick up.

Need for differentiation: Telecom operators & handset manufacturers

- Heavy investments in 3G, falling prices of handsets, and a heavy churn rate have increased pressure on the key industry players to retain and increase their market share through new services and increasing stickiness of consumers in a market where low prices are a given.

- The top five to six products such as game based applications, music download continue to form close to 80% of VAS revenues, and have become easily replicable. The other types of services such as governance, education, and commerce constitute only 20-25% of VAS revenues, leaving large scope for growth.[10]

Increasing consumer demand / awareness

- There is an increased willingness to spend on a compelling product which includes the whole eco-system and focuses on user awareness and ease of usage. A good example of this is the rapid uptake of the Nokia Life Tools mandi price service to farmers at ₹30/40 a month. This involves easy to access SMS based information.

- Consumers are also looking for diverse vernacular content at affordable prices – This would enable proliferation of 3G services across the country especially rural India.

- Quality of service would be just as important as content for faster uptake of mobile broadband services, which again would be linked to network congestion and hence spectrum.

- Some key non-entertainment services for the rural and urban segments will be in the areas of governance, commerce, health and education, with a need for customization according to the demographic segment.

- In the rural segment services such as (1) Selling and procurement information and support for farm commodities (2) Educating farming community on best practices (3) Delivery of healthcare and education to remote village via the mobile broad band network (4) Regional language content, and news (5) Access to government services on Mobile-Based Service (MBS) platform individually or on CSC (Common Service Centre) model are good examples, while in the urban segment services such as (1) Mobile banking and commerce (2) Tele counselling services (3) Tele-education (4) Tele-medicine (5) Location information, Area maps etc. (5) Easy access to services such as government services, utilities etc can be potential successes.

"As far as India is concerned, voice and/or SMS based applications are likely to continue to

10 Primary interview with Spice Group

"As far as India is concerned, voice and/or SMS based applications are likely to continue to dominate, especially as the user base continues to expand into lower income segments of the population" Lead ICT Policy Specialist, World Bank

dominate, especially as the user base continues to expand into lower income segments of the population" – Lead ICT Policy Specialist, World Bank

Business needs of service providers

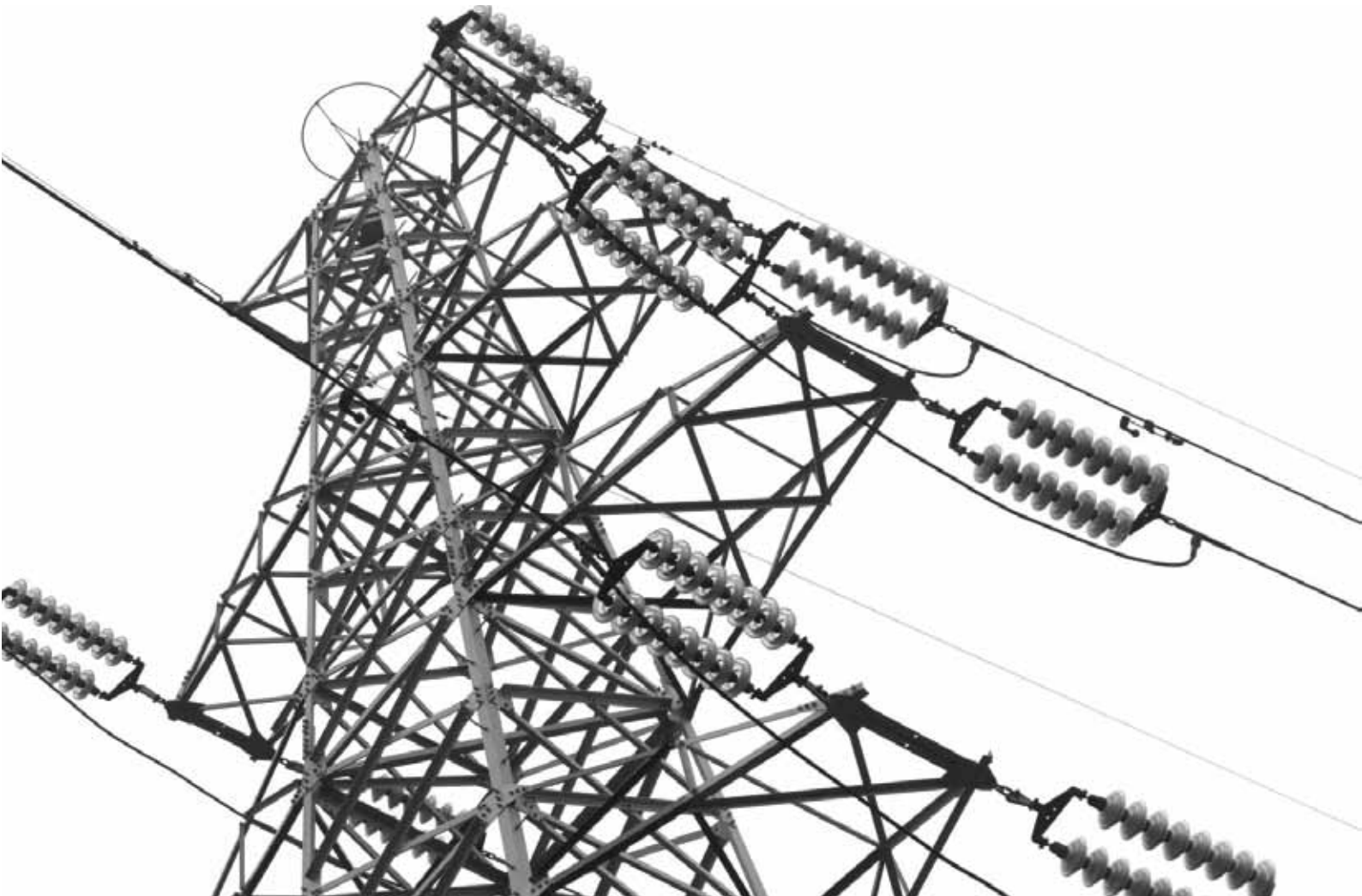
- There is also a growing need from industry players such as banks, educational institutions, healthcare providers etc. to use mobile applications and other value added services as a channel to provide easy access to services to their customers, as well as, increase productivity and efficiency of employees.

- MVAS is also being seen as a means for reaching customers who were previously inaccessible due to lack of the presence of physical infrastructure and/ or high cost of servicing in remote areas.

Automation due to Information and Communications Technology (ICT)

- Vital information about every citizen of the country exists in electronic form, stored in large central databases, either by the government or private service providers depending on the information. For example, birth, death, permanent address, PAN card, Voter's ID etc., is some of the information the government is migrating to electronic forms, whereas information regarding health, education, employment etc., is some of the information available with private service providers. Availability of this type of information on a cloud is, and can be leveraged to provide a vast variety of services by automation.

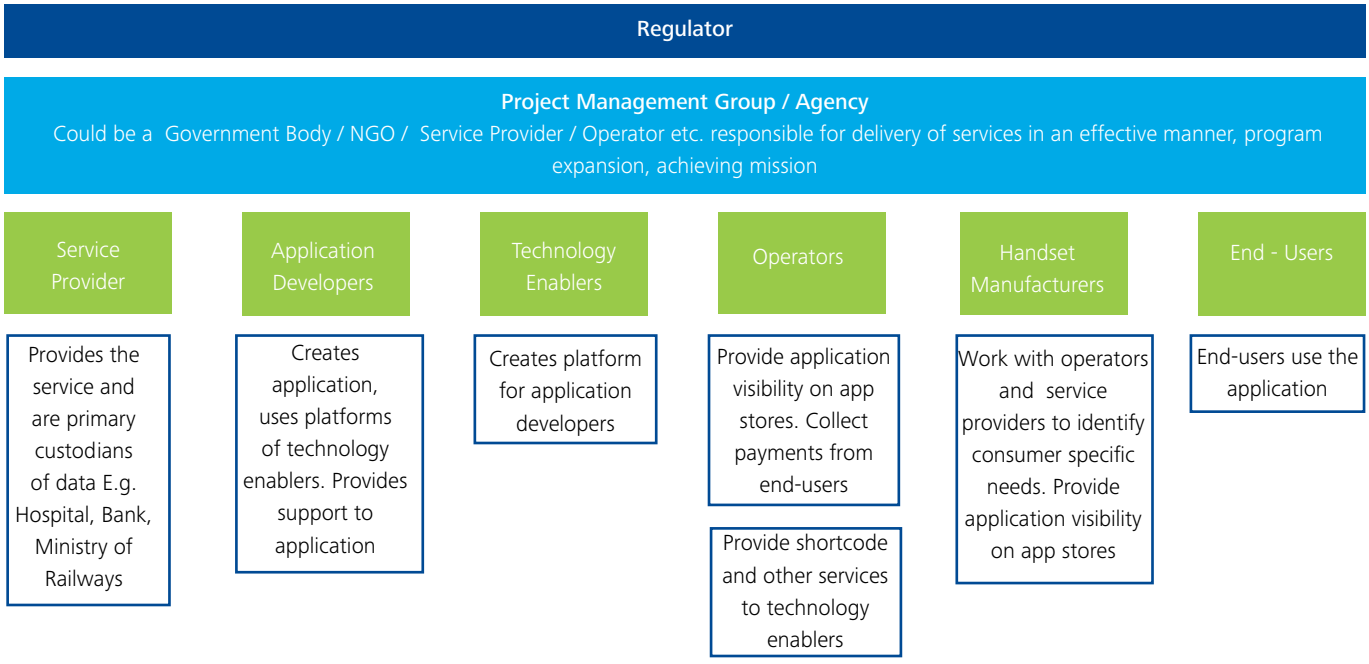
- While e-services and even some IVR based services are examples of effective use of automation leveraging ICT, mobile phone based services can leverage the power of huge electronic databases of information to deliver critical services in a customized, relevant, and secure manner to consumers.



MVAS Value Chain

Multiple stakeholders are involved in delivering MVAS to the end users. Each stakeholder contributes to a specific part of MVAS and can have multiple business models.

Figure 9: MVAS Value Chain



Source: Primary interviews, Secondary research

The various stakeholders are analyzed below:

Service providers

Service providers are the custodians of the data / information, hence highly critical for the Utility MVAS Ecosystem. They may work with application developers / technology enablers to ensure that relevant applications are developed and with handset manufacturers to get them to pre-load applications on their phones.

Application developers

Application developers design and develop applications for the end-users on the mobile phones. To add enhanced features (such as location tracking, support for streaming video, etc) they use platforms provided by technology enablers in their applications. Application developers also build custom applications for other parties such as service providers, and sometimes also manage the service for them. In this case they either get a lump sum fee on the completion of the app, or it can be based on metrics such as number of downloads, revenues generated, etc.

Technology enablers

Technology enablers create platforms for providing additional functionality to other parties, especially application developers. These functionalities could be Interactive Voice Response (IVR), Unstructured Supplementary Service Data (USSD), location identification, ability to stream videos, etc. Technology enablers operate on multiple business models. They provide their platforms to application developers or enterprises on a license, or on a revenue share basis, or a transaction charge per usage.

Network operators

Network operators provide network connectivity to end-users, visibility of on-deck services, and ensure correct routing of voice and data through their networks. Operators also provide services to other

parties such as technology enablers and application developers. These services include short code services for IVR or SMSes, identification of location of user, and billing to the end users.

Handset manufacturers

The role of handset manufacturers in India has traditionally been minimal when it comes to MVAS. Their main role is to provide standards-compliant handsets to the end-consumers to enable the use of MVAS through their handsets. Globally, handset manufacturers such as Apple, Blackberry, and Nokia have been launching their own application stores, and pre-loading certain applications on the phone.

Project Management Group

The role of this entity is to oversee the overall delivery of the services in an effective manner, plan expansion / scope of program and ensure achievment of the mission. In certain cases, this role could be played by one of the players listed above, especially the service providers or the operators, while in other cases it could be a separate organization playing this role. For example, the Commonwealth of Learning, a not-for-profit organization, having representative of various governments, plays a lead role in coordinating with Airtel and other players to roll out a vocational training for farmers. An example of a service provider playing a coordinating role is Nokia in South Africa where it co-ordinates with Mxit and operators to provide m-learning.

Categories in focus

"Mobiles in India can go a long way in banking a significant % of the current cash economy, once P2P Payments are enabled"

Business Head, Mobile & Internet Banking, Leading bank in India

As discussed earlier, Utility MVAS comprises numerous categories. This paper has detailed four of these categories, the selection of these four being primarily driven by their introduction and adoption globally, and their relevance to India. However, these categories are not meant to be a prescribed priority for the country and have been discussed for illustrative purposes only. These four categories are: M-Commerce, M-Education, M-Health and M-Governance.

Category 1 : M-Commerce

More than 50% of the Indian population faces complete financial exclusion (No Savings Account)

The case for M-Commerce in India

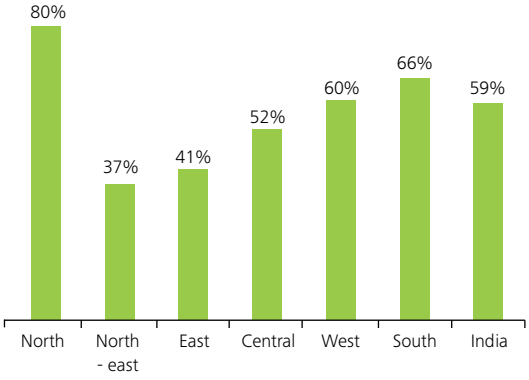
For inclusive economic growth, ensuring full financial participation of all citizens is necessary. The country's financial institutions, both government and private, are struggling to set up the requisite infrastructure to serve all regions equally. This is a significant challenge, but also a potential opportunity. Many countries in developing nations across the world from Africa to Eastern Europe have adopted mobile banking gateways, and have seen great success. A case in point is M-PESA in Kenya which has been cited as a driver for the doubling of bank accounts from 6 million to 12 million in a year [11].

Some key reasons for India to look at M-Commerce as a focus area are:

- **Financial inclusion: A Government Priority**
  The Indian Government and the Reserve Bank of India (RBI) have clearly identified 'Financial Inclusion' as one of the key objectives for this country. In 2006, the RBI called for 100% financial inclusion in India. For this purpose, the RBI and the Union government are working in tandem to make banks push the agenda on inclusive growth, both in spirit and numbers[12].

- **High Financial Exclusion (%)**
  Savings account is the basic banking product, considered to be essential for all adults in an economy. In India, the ratio of savings accounts to adult population is as low as 59% (Refer Figure 11). Incorporating the multiple accounts held by some adults, it is estimated that
  - More than 50% of the Indian population faces complete financial exclusion (No Savings Account)
  - Financial exclusion in urban India is about 44%
  - Financial exclusion in rural India, which comprises 60% of the Indian populace, is acute, with about 76% of the rural populace facing financial exclusion[13]

Figure 11: Number of savings account to adult population (%) (2005)



Source: Collaborating for Financial Education, RBI as a Case Study; RBI; Nature and Extent of Exclusion, NABARD Report

- **Mobile: Widespread Cost Effective Channel**
  India has ~600 Mn mobile subscribers, growing at a rapid pace (Refer Figure 2). Compared to the 70,000 bank branches in India, catering to the 6,00,000 villages and cities, the mobile is a far more widespread, and cost-effective channel [14]. It is increasingly difficult for banks to expand in rural areas because of various infrastructure, manpower, and operational problems.

Mobile banking, which has seen success in many other parts of the world, can create new and convenient financial transactional channels for mobile users which are accessible from anywhere, anytime. More importantly, global case studies such as M-PESA show that mobile remittances (P2P Payments) have the potential to act as gateways to the banking system for the unbanked and the under-banked segments, which make up a huge segment of the Indian population. Remittance services via mobiles, banks and other financial institutions can attract new customers to related financial products such as deposits, loans, and insurance.

11 Primary interview with Vodafone UK
12 Secondary research, news articles
13 Secondary research, Reserve Bank of India
14 Reserve Bank of India

Current implementation of M-Commerce initiatives

Global examples prove the power of the mobile phone to deliver multiple Mobile Value Added Services in the M-Commerce space. Services in M-Commerce span the entire spectrum of Information, Application, and Enablement:

Service Category	Service	Examples
Information	Mobile Banking Alerts	**Most banks in India including SBI, ICICI, Standard Chartered, HSBC, etc offer banking alerts** on mobile phones via SMS including deposits, cheque clearance and withdrawals
	Information services such as Stock Quotes	**Business news** channels such as NDTV profit, CNBC have applications that offer stock updates and market news to users in India
Application	Mobile Banking Transactions	**Eazzy 24/7** is the mobile banking service of Equity Bank in Kenya that allows the consumers to make a majority of mobile banking payments, transfers and transactions on their mobile phones **Yucash** in Kenya is also a mode of transferring money using mobile phones based on accounts created on their network
	Mobile Purchase and Content Purchase and delivery	**Cell Bazaar** in Bangladesh is a classic example where consumers can buy and sell products across a mobile network **CreditEx,** in the US, also allows consumers to make payments for goods bought at local brick and mortar stores via their mobile phones
	Mobile Ticketing	**Simpass,** in China, is a mobile ticketing application that allows consumers to use services such as public transport, movies, theaters, restaurants and amusement parks via mobile ticketing on the Simpass enabled phones
Enablement	Savings Account	**M-KESHO** is a service launched by Safaricom and Equity bank in Kenya that allows consumers to store money and also earn interest on it
	Enable Payments	**mEnable,** a service in the US, Germany and the UK, enables companies to bill their consumers in a variety of ways such as SMS, credit cards, WAP, wire, etc all on a safe and consumer protected platform **MTS Ukraine,** in association with Portmone, permits subscribers to pay for goods and services using a Visa / Mastercard, directly from the mobile phone including - recharging mobile phone balance, paying for a friend's mobile phone connected to any other mobile operator of Ukraine, paying for Internet and cable TV, paying for telephone. **MTS Azerbaijan** has the IPAY service which provides subscribers the ability to transfer funds and/or make payments for the following services – internet access, tickets to entertainment events, items purchased in shops and online auctions, access to gaming servers, cable and terrestrial TV, repayment of loans, utilities, electrical energy, water supply, natural gas, communication services, security services for apartments, etc.

M-Commerce in India

- Only 5% of all mobile subscribers are registered users of mobile banking and more significantly, only 0.5% of them are active mobile banking users[15]. These are also primarily restricted to information based services.

- However, in order to achieve the target of 100% financial inclusion, initiatives have been taken by the government and by the regulator, RBI to support financial inclusion and promote M-Commerce in India:
  - RBI issued **'Mobile Banking Transactions in India – Operative Guidelines for Banks'** in December 2009 and has communicated willingness to relax / modify norms as the market evolves and new models and security mechanisms emerge.
  - RBI has increased mobile payment limit to ₹50,000[16].
  - Earlier, only a Closed Wallet was allowed. Now, a Semi Closed Wallet has been allowed. Bharti Airtel was granted the license to use the Semi Closed Wallet by the RBI. In another recent development, RBI issued Semi Closed Mobile Wallet license to Itz Cash as well which is a non-bank semi closed pre-paid payment issuer in India.
  - An open wallet system, which may fuel rapid success of these services in India, is yet to be allowed in the country. However, the National and Payments Corporation of India (NPCI) - set up by RBI, as an umbrella institution for all the retail payments system in the country - is currently piloting a Person-to-Person (P2P) money transfer mechanism called the 'Interbank Mobile Payment Service (IMPS)'. Six of the leading banks in India are participating in this pilot, which can help in greater expansion of mobile banking services.

"RBI has played a helpful and pro-active role for enabling mobile commerce in India" – Business Head, Mobile & Internet Banking, leading bank in India

15 Secondary research

16 Reserve Bank of India

SBI using mobile banking for Financial Inclusion

RBI has focused its 100% Financial Inclusion plan on the public sector Banks. SBI, the country's largest public sector bank is currently piloting two initiatives for financial inclusion that are based on the m-platform. SBI currently has a tie-up with two organizations for providing m-banking services in rural areas. Both initiatives were carried out in alliance with the application developers.

- They have tied up with Ecoaspire foundation to provide withdrawal, deposit and remittance services in rural areas using a mobile phone. There is a touch point kiosk at the village, where consumers may go to make their transactions. The person at the touch point makes the transactions for the consumers using his mobile phone, thereby taking the bank to them.
- They have also tied up with Oxigen Sahyog Microfinance to offer microfinance options in the villages again using the touch point kiosk method described above.

"RBI has played a helpful and pro-active role for enabling mobile commerce in India" Business Head, Mobile & Internet Banking, leading bank in India

- Unique Identification (UID) can potentially be a significant enabler in India for various initiatives: Various value chain partners including handset manufacturers (such as Nokia) and operators (such as Bharti) are working with the Unique Identification Authority of India (UIDAI) team to figure out the execution of electronic authentication using mobile phones.

Learnings from successful M-Commerce initiatives across the world

Certain learnings can be derived and deployed from the global examples of successful M-Commerce initiatives:

- ***Multiple business models exist***
  M-Commerce not only meets social objectives significantly but is also commercially viable. One does not need an NGO or a Government to fund it: For example, M-PESA has been an initiative led by the telecom operator Safaricom. Similarly, Zap, and YuCash in Kenya have been led by telecom operators or private profit-making outfits.

  Three models[17] have emerged globally for the P2P Payment model:
  – *Remittance Service Provider (RSP) Dominated Model:* Many RSPs can adopt a direct-to-consumer model using the network of the telecom operator. While banked consumers get more convenient access points, mobile phones here become a channel for the hitherto unbanked users to gain and use a bank account.
  – *Operator Dominated Model:* In the operator-led model, customers do not deal with a bank. Customers exchange their cash for money stored in a mobile money account on the telecom operator's server, which is not linked to any bank account in the individual's name. Customers can send the money to others or use it to store funds for future use. They can also convert it back to cash at any participating retail agent. The network operator performs a role similar to a bank in the bank-led model. Eg. M-PESA in Kenya which is launched by a Vodafone affiliate, Safaricom.
  – *Partnership Model:* Mobile network operators forge partnerships with banks or RSPs to efficiently handle cash management and disbursement. Banks exploit the distribution reach of mobile networks to market services among underpenetrated customer segments while mobile network operators benefit from the banks' domain expertise. E.g. YuCash is a partnership between Obopay and Equity Bank.

17 Secondary research

- ***The banking regulator plays a key role***
  Mobile Commerce needs a broad regulatory environment that supports its use. Regulator plays a significant role to regulate / monitor the banking transactions in any country. One of the key reasons for the success of M-PESA has been the fact that the regulator is convinced of the high levels of security, transparency and utility of the service.

- ***Effective partnerships are vital***
  Mobile Banking requires a co-operative relationship between mobile network operators and banks. Telecom Operators need to be better equipped to handle cash management and disbursement and must forge partnerships with banks to efficiently handle these areas of operations. Similarly, banks must exploit the distribution reach of mobile networks to penetrate unbanked areas.

- ***Awareness, security, and high performance services drive adoption***
  To enable adoption, it is important to:
  - *Build Consumer Awareness:* Reaching out to the consumers through the right channels with the relevant message.
  - *Ensure high reliability and security:* M-Commerce involves monetary transactions. Consumers in India would not adopt it if they have the slightest doubt about the security of the service. Winning the trust of the consumer is very important (as also identified by Safaricom for their M-PESA initiative).
  - *Ensure high performance:* Timely response to transactions is a critical factor for the success of M-Commerce. A P2P transaction, for example, needs to happen on a real-time basis.

In short, the mobile channel must provide an efficient and timely response to transactions, have adequate capacity to support acceptable performance and be able to recover quickly from disruptions. It must be able to authenticate the identity of customers, ensure transactions are legitimate and appropriately protect the confidentiality and integrity of all financial transactions.

Key considerations for deployment of M-Commerce Services in India

- The key regulatory body, RBI has already actively instituted measures for the progress of mobile commerce in India. With regular efforts from RBI, key telecom operators and the banks, mobile banking is on its way to achieving success.

- However, the real success lies in extending mobile commerce services to achieving financial inclusion, for which the supporting ecosystem needs to be built.

- UID infrastructure can be leveraged to deploy M-Commerce / banking services in India

- TRAI needs to educate the Telecom Service providers, directly or through the COAI about the immense potential M-Commerce offers in this country

- Another key challenge to be taken up by all players jointly in the eco-system is to ensure consumer awareness and trust in any M-Commerce activity through widespread advertising. In addition to individual players, associations such as COAI, IAMAI can take this up.

"Mobile commerce in India is set to witness unprecedented growth and adoption. Whether the inflexion point is 6 months or 18 months away, is difficult to predict"

Business Head, Mobile & Internet Banking, Leading Bank in India

Case Study : M-PESA, Kenya [18]	
Background	• The key driver for this initiative was the lack of adequate banking infrastructure and channels for banking. • As of early 2007, according to a national survey, 38% of Kenyans had no access to any form of financial services, and only 19% had access to formally regulated financial institution such as banks. In the entire country there were only 400 bank branches and just over 600 ATMs. • The above led Vodafone to develop M-PESA (Mobile Payment Platform), which was launched commercially by Vodafone's affiliate, Safaricom.
Service Description	• Customers register at an authorized M- PESA retail outlet with their National ID. They are then assigned an individual electronic money account that is linked to their phone number and accessible through a SIM Card-resident application on the mobile phone. • Customers can use their phones to – Transfer funds to other M- Pesa users, and also the non-registered users and users on other mobile networks – Pay bills (i.e. water, electricity, school fees) – Purchase mobile airtime credit – Receive salary, or government pensions/aid payments – Withdraw money from ATMs – Buy goods from merchants – Perform simple transactions with their bank, for example send money to the bank and receive withdrawals from their bank account directly to M-PESA. All transactions are authorized and recorded in real time using encrypted SMS, generated by the SIM application. Customers do not have to compose the SMS message or remember specific message syntax • Customers can also deposit and withdraw cash to/from their accounts by exchanging cash for electronic value at a network of retail stores (referred to as agents). • In recent months, Safaricom has increasingly opened up M-PESA to institutional payments, enabling companies to pay salaries and collect bill payments • Enabled by high levels of security: phone noumber, SIM, customer's PIN are checked by the system. This is further supported by network authentication. • M-PESA is live in Kenya, Tanzania, South Africa, Fiji, Afghanistan and Qatar
Impact	• High adoption – As of October 2010 , M-PESA in Kenya had 12 Million Users which is ~27% of Kenya's Population and 40% Kenyan adults – Monthly person-to-person transactions worth over $375m with average of $37 per user per month, which on an annualized basis is equivalent to 14% of Kenyan GDP • It is estimated that on average, it leads to savings of ~USD 3 and 3 hours of time per transaction conducted • 19,000 Agents at which M-PESA users can cash-in and cash-out, out of which nearly half are located outside urban centres. Agents earn commissions on each registration and money deposit and withdrawal transactions operated from their store • Employs ~400 individuals (375 of these being for customer care) and provides indirect employment to ~30000 through the Agent network • Pay Bill is used by over 500 businesses as a payment option • It has indirectly played a significant role in increasing the bank accounts in Kenya from 2.5 Million in 2007 to 6 Mn in 2009 to 12 Mn currently • M-PESA has reached out to the banked, unbanked and under-banked populace alike
Key Success Factors	• Clever service design that facilitated rapid adoption and early capturing of network effects – Simple and clear mode of communication – Easy user interface • Building trust in the retail network – Linking the M-PESA Brand to customers' trust in Safaricom's strong corporate brand – Safaricom selects its agents with a lot of care to ensure agents with high integrity are present on its network, and performs due diligence on the owners • Trust of the regulator – Safaricom involved the central bank of Kenya right from the very beginning before M-PESA was piloted. Each new product functionality had been discussed with and approved by the Central Bank in advance of its deployment. – The Central Bank declared the service safe and in line with Government's objectives of financial inclusion. – 2 years after launch , the Central Bank carried out a full audit of the system, and declared funds in the platform safe and the service good for customers.
Future Plans	• M-PESA plans to expand its geographical reach and the span of its services • Safaricom, in partnership with Equity Bank has already launched M-KESHO, a service through which the customer can even earn interest on the money deposited with a bank savings accounts, build up a transaction history in order to support application for micro-loans, and purchase a personal accident insurance product

18 Primary interview with Vodafone UK

Category 2 : M-Education

The Case for M-Education in India

Education is a basic requirement for citizens of any country, as it is seen as the foundation of a society having economic wealth, social prosperity, and political stability. India faces a significant challenge in this area with relatively high illiteracy rates (~34%)[19], coupled with a growing young population. Mobile phones, through various value added services, can be used as an effective channel for delivery of basic education related services across the country.

The education industry in India is estimated at ~US$80 billion, and the government expenditure on education was ~4.5% of GDP (2008-2009)[20] .

The Government of India has 'Education' as a focus area: The 'Right to Education (RTE) Act' mandating the Government to achieve 100% literacy for all children in India, increasing role of Public Private Partnerships (PPPs), and the Sarva Shiksha Abhiyan initiative are indicators of the increased focus on education.

Significant progress can be made to address this critical need of the population by leveraging the rising penetration of mobile phones (Refer Figure 2) and studying its increasing use globally to enhance the delivery of education based services.

Current implementation of M-Education initiatives

Governments and other stakeholders (including organizations, NGOs, etc) in countries including Tanzania, Bangladesh, West Africa, South Africa, Kenya and China have adopted MVAS to deliver education services. M-Education initiatives globally have spanned across the three service categories of Information, Application and Enablement. Some of these include:

19 Source : UNICEF

20 Source : IDFC – SSKI Research

Table 1: State of Education in India

Report Card	
17,282 habitations	Do not have a primary school within a 1km radius. UP leads with 7,568 such habitations
26,513 habitations	Do not have an upper primary school within 3km radius. West Bengal leads with 7,003 such habitations
80,43,889 children	Aged between 6 and 14 years do not go to school
1,48,696 government schools	Run without a building
1,14,531 primary schools	Have a single teacher
1,65,742 schools	Do not have drinking water
4,55,561 schools	Do not have a toilet

Source: Report to the Delivery Monitoring Unit, PMO (Dec 2009)
Courtesy: CRY

Service Categories	Service	Examples
Information	Exam alerts/ results/ issuance of registration id/ question papers etc.	**mGurujee (India)** – Allows users access to content in areas of engineering, management, civil services and medicine; school syllabi of CBSE and ICSE boards as well as skill development, vocabulary and general knowledge tutorials **IGNOU (India)** – Exam alerts, available in five regional sectors with a network of 30,000 – 50,000 students **BITES (Kenya)** – Can support pupil self-assessment and teachers in a social networking style, directing assessment for learning using the digital media
Application	Language training - Audio and Text based	**BBC Janala (Bangladesh)** - BBC World Service Trust and BBC Learning English are implementing the Janala project, an initiative that is providing English language lessons to citizens via their mobile phones as part of the wider English in Action program in Bangladesh, funded by the UK's Department for International Development (UKaid)
	Language training - Interactive (including tests etc.)	**English Seekho (Tata DoCoMo)** - allows users to take conversational English language lessons on their mobiles through an interactive voice response (IVR) application that guides the user through audio clips. It offers short lessons followed by interactive lessons which enable users to practice what they have learnt through the mobile's keys or through speech recognition. **MILLEE (Mobile and Immersive Learning for Literacy in Emerging Economies)** - Cellphone applications that enable children in the developing world to acquire language literacy in immersive, game like environments. Aims to make localized language learning resources more accessible to underprivileged children, at times and places that are more convenient than schools. The design methodology comprises best practices in commercial language learning packages and the traditional village games that children in the developing world play. After 10+ rounds of field studies in the past six years, a controlled experiment with 800 rural children in 40 villages in India is being carried out, with early replication underway in Kenya, China and elsewhere. **MobilEdu (China)** - A Joint Venture between Nokia and Pearson in the China Market. It allows the user to take advantage of free time to study English on their cell phones, anytime, anywhere, to quickly and efficiently improve their reading, listening, speaking, and writing skills.
	Mobile reading	**Yoza (South Africa)** – Aims to create and upload stories keeping in mind a teenage audience and inspire them to enjoy well-written stories by good authors. The m-novels are written in conventional language, with txtspeak only used when a character is writing or reading SMSes or instant message chats. Also included is prescribed school reading that is in the public domain.
	Adult literacy	**ABC (Africa)** - uses multimedia phones that have been programmed with a digital curriculum in the local languages of Hausa and Zarma, and incorporates a practical literacy component tied to obtaining market information via text message.
Enablement	Subject tutorials	**Dr. Math (South Africa)** – uses volunteer students from local universities to tutor children on mathematics and other subjects. Students access Dr Math via any mobile phone based instant messaging platform (MXit, etc) and tutors provide help via a web environment on PCs.
	Teacher Training	**BridgeIT (Tanzania)** - An innovative process of disseminating complete educational modules directly to the classroom via a mobile phone
	Mobile education dissemination	**Mobile education initiative to rural communities and physically challenged (India)** - Strategic alliance between SNDT Women's University, Tata Teleservices, Atom Tech, Indian PCO Teleservices (India) to develop and disseminate mobile education

Today, information services such as examination alerts, results etc. target a largely urban population. These services can be expanded to rural areas. Moreover, the enablement and application type services have a large scope in India, given their potentially significant impact for the country and the nascent stage they are currently in.

The education services that can be delivered on a mobile platform can be divided into

- Formal Education (defined as education currently delivered through traditional school/academic institution set-ups), and

- Non-Formal Education (such as vocational training, adult literacy, training on specific areas such as understanding of financial services, agriculture etc.)

Learnings from successful M-Education initiatives across the world

There is a potential for multiple models within the M-Education space. The two models that seem to have some success globally have been described below:

- **Government driven** - Especially in the case of formal education, the government needs to take a lead role, with the services being highly subsidized, preferably free to the economically disadvantaged sections of society. Services offered through this mode would help achieve the objectives of the 'Right to Education Act' as well as help channelize funds from 'Education Cess', etc in effective ways. Examples of government initiative can be seen in the case of
  - Mxit/ Nokia mlearning initiative in South Africa where the Vice- President took a lead role and invited Nokia to form alliances to enable the use of mobile phones to enhance mathematics learning amongst the youth
  - BridgeIt illustrates the significant role of the Government (Dept. of Education in Philippines) (Refer Case Study Below)

"If you work in the formal schooling sector, you have to work with the government." – Education Specialist, Commonwealth of Learning

- **Collaborative approach** - Especially in the case of non-formal education, there is scope for monetization of services, as well as, achieving commercial success in this segment. The government can lead the way by coordinating between the various players and demonstrating, through a pilot model, how M-Education services in this area can be a commercial success even though the gestation period is likely to be long. Various value chain players can look at exploring specific options in this area as well. The key to a successful model will be to develop partnerships with the right institutions, especially for content development and delivery. The Commonwealth of Learning's initiative with IKSL (refer case study below) is an example of such an approach.

"While human capacity development is important, there is an opportunity cost for the community involved in attending the training programmes. Also, a classroom environment in training programme evokes uneasiness among illiterate and semi literate adults. Thus rural telecenters did not succeed, and we finally came to mobile phones and developed audio learnings for adults. One can learn from wherever they are without any drudgery"– Education Specialist, Commonwealth of Learning

Key considerations for deployment of M-Education Services in India

- **Government involvement** and insight for laying out a proposed framework (infrastructure, manpower, reach, etc) and getting various stakeholders involved

- **Strong community involvement** to ensure private sector and individual involvement in developing and spreading content to the target segment E.g. Involvement of students from local universities to tutor children on mathematics and other subjects, as enabled by the Dr Math platform

- **Strong coordination** between all stakeholders to ensure smooth development, delivery and constant innovation within the required ecosystem for education services to be provided to the masses. Nokia's lead role in MXit is an excellent example of such coordination being enabled by a private body.

- **Heavily subsidized services**, preferably free of cost to the rural segments to ensure mass reach and adoption

- **Recognition of distance learning** to ensure sufficient reach and adoption, considering limitations

"While human capacity development is important, there is an opportunity cost for the community involved in attending the training programmes. Also, a classroom environment in training programme evokes uneasiness among illiterate and semi literate adults. Thus rural telecenters did not succeed, and we finally came to mobile phones and developed audio learnings for adults. One can learn from wherever they are without any drudgery"

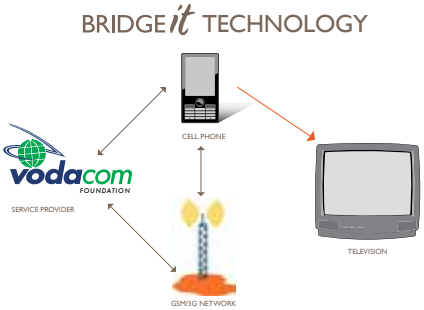
Education Specialist, Commonwealth of Learning

of physical infrastructure and manpower availability especially in remote and / or rural areas. The Commonwealth of Learning cites 'Open and Distance Learning (ODL)' as a big frontier for education today.

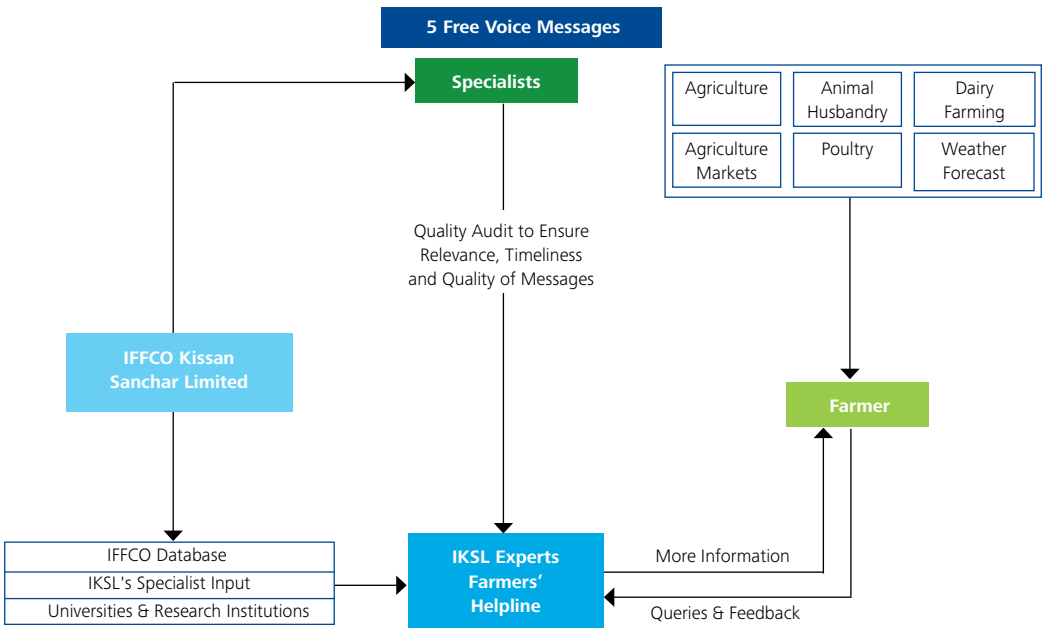
- **Emphasis on vocational training** in coordination with organizations such as the National Skill Development Mission to increase skill-based knowledge and employability prospects

- Practicality and relevance of content and service delivery framework to ensure mass adoption and impact of all education based services offered e.g. Prescribed school reading such as Macbeth on the Yoza platform

There is immense potential within the M-Education space, especially looking at the various government as well as private sector initiatives such as the Right to Education Act (Government) and the Teach for India Campaign (Times of India). Going forward, the Government needs to develop a detailed plan in terms of framework, infrastructure requirements, manpower, reach etc and get the private sector closely involved in an initiative to use the mobile platform to spread education in the country.

Case study : BridgeIT, Tanzania and Philippines[21]	
Background	BridgeIT recognizes that young people thrive when they have the education and skills to lead productive lives. To help support young people during their crucial developmental years, BridgeIT aims to develop a cost-effective way of providing rich educational content to schools in developing countries through the use of innovative mobile technology, curriculum and teacher training in the classroom. • Key objectives for launching BridgeIT were: – To integrate it into the education system in order to reach the greatest number of children and teachers possible – To improve teacher performance, as demonstrated by changes in the quality of interaction and teaching in the classroom – To increase learning gains among upper primary students, particularly girls – To use mobile phone and digital technology to increase achievement among primary school boys and girls in math, science, and life skills – To increase the quality of teacher instruction in Tanzanian primary schools • Target: Upper primary school children, especially girls (initially 5th - 6th standard) and Teachers (for training purposes). • Total initial investment: $ 2,000,000 (for 2 years) • Partners: The program is implemented through a unique cooperative partnership between Nokia, International Youth Foundation (IYF), Ministry of Education and Vocational Training (MoEVT) and Pearson foundation. The importance of this cooperation extends to local program partners and NGOs: Globe, Seameo-Innotech, Ayala Foundation, Chikka, PMSI. It was funded by UNDP (Phase 1) and USAID (Phase 2)
Service Description	Content provided/Service delivered: • Access to digital video content in classrooms 'on-demand' via cellular technology • Teacher training & ongoing support • Learner-centred lesson plans & teachers' guides Through the program, teachers download video content (educational videos focusing on math, science, and life skills) onto mobile phones, which are connected to TVs in their classrooms which display the videos, allowing remote schools and communities to access a vast range of locally-developed or adapted educational content. The videos, designed to enhance existing primary school curricula, are paired with learner-centered lesson plans. Students watch the videos, which usually run for four to seven minutes, and then teachers use BridgeIT-designed lesson plans to build on the ideas set forth in the videos. 
Impact	• In the Philippines, over seven years, BridgeIT has been implemented in 290 schools, training 1,476 primary school teachers, and benefiting 976,000 rural and urban students • In Tanzania, over one year, BridgeIT has been implemented in 150 schools, training 1,544 primary school teachers, and benefiting over 40,000 students • The positive impact went beyond the classroom, as the project motivated school officials, parents, and community leaders • Within a year, the program demonstrated that academic performance had improved when compared to the study's control group. • Awards: – In March 2004, BridgeIT was recognized by the International Association of Business Communicators (IABC) with two outstanding awards – The Philippines 2004 Gold Quill Awards honoured BridgeIT with awards in two categories under Communication Management
Key Success Factors	• Overcoming the complexity of start up operations including consensus building, infrastructure assessment, roles/responsibilities, etc. • Funding from various private companies, Government agencies, the Ministry of Education and Vocational Training (MoEVT), NGOs and UN bodies as the initial investment cost is high • Successful project management • Smooth transitioning of ownership after successful implementation to the local school authorities • Government and local educational bodies support for widespread adoption
Future Plans	• Philippines – 263 additional schools by 2010 – Local ownership and management – Transition to mobile-only solution • Tanzania – Capacity building and training at local and national levels – Transfer to the Ministry of Education and Vocational Training (MoEVT)

21 Primary interview with IYFNet

Case study : IFFCO Kisan Sanchar Limited (IKSL)	
Background	IKSL is a 50:25:25 joint venture between Bharti Airtel, IFFCO and Star Global. This joint venture has been formed with the objective of bringing cost effective communication to rural communities. Communication services are provided by Airtel while IFFCO utilizes its vast network for marketing and distribution of services. The mission for this initiative is: • Empowerment of people living in rural India • Provide pertinent information and services through affordable mobile communications • Improve decision making ability of farmers • Work with like minded organizations for e-transformation of villages.
Service Description	IKSL provides low cost mobile handsets, along with Airtel's mobile service. There is an Experts Farmers' Helpline (refer Figure below: IKSL VAS Platform) that provides information to farmers on weather forecast, real time mandi prices, farming tips etc. This information helps the farmers in taking their farming decisions resulting in crop yield. The availability of mandi prices and other information such as demand for produce reduces farmers' dependency on middlemen. This service enables and empowers farmers with the latest information, thereby eliminating the role of the middleman who would earlier take away large amount of the margin **Services offered to the farmers:** Value Added Services offered on IKSL's Green SIM Card include • 5 Free Voice Messages every day : (State, zone or community level messages) • Rural help-line : (534351 from Green SIM Card) • Call rates offered by Airtel at 50 paise / minute within the IKSL network Offering a good deal to farmers could potentially help the network service provider build a loyal customer base and create up-selling and cross-selling opportunities **IKSL VAS Platform** 

Case study : IFFCO Kisan Sanchar Limited (IKSL)

Impact

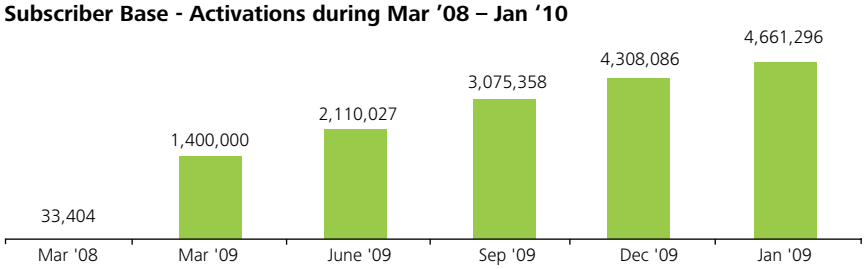
IKSL has an enrolment of 70 lakh farmers and more than 35,000 co-operative retailers

Highlights of the reach

No. of states covered :18[22]
No of zones in state : 51
Content managers : 17
Experts : 57

	Oct – Dec '09	Apr – Dec '09	Since Inception (until Jan '10)
Total messages broadcast	15,156	44,453	95,156
Questions on Helpline	14,845	44,609	80,845
Feedback from farmers	905	2,407	4,905
Phone In Expert Programs	65	115	180
Quizzes	105	255	267

Subscriber Base - Activations during Mar '08 – Jan '10



Key Success Factors

Quality Processes

- Planning of voice messages based on local agricultural situation & queries on helpline
- One minute messages in local language vetted by experts
- Feedback from farmers to improve services
- Periodic surveys conducted by external agencies
- Quality audits of delivered messages by eminent specialists

Special Tie-ups for Content Enrichment

- Commonwealth Agricultural Bureaux International (CABI)
- Prof M.S Swaminathan Research Foundation (MSSRF)
- IFFCO / IFFDC / IFFCO Foundation
- Commonwealth of Learning
- Selected Agricultural Universities / Institutes

Promotion of Focused Communities

- To provide focused services to a community with a common interest

Approach

- To forge groups with a common interest: common crop, common occupation
- All five voice messages on area of interest
- Access to related experts through helpline
- Special programs in association with other stakeholders / NGOs
- Encourage intra-community programs & interaction

22 Uttar Pradesh, Uttaranchal, Punjab, Haryana, Himachal Pradesh, Bihar, Jharkhand, West Bengal, Orissa, Rajasthan, Maharashtra, Gujarat, Madhya Pradesh, Chhattisgarh, Andhra Pradesh, Karnataka, Tamil Nadu, Kerala

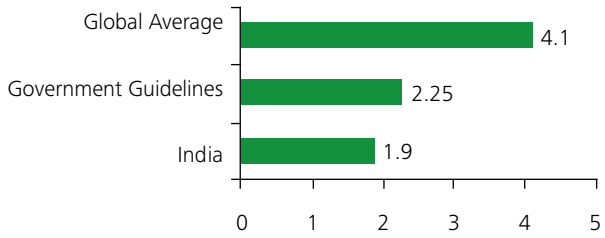
Category 3 : M-Health

The Case for M-Health in India

Healthcare is a basic requirement of the citizens of any country. India particularly faces an acute inequity of access to healthcare services. Though the problem cannot be entirely solved by Mobile Value Added Services, various case studies prove it can enable major strides in the delivery of timely and effective medical services and serve to improve overall standards of public health.

The Indian government is increasing its focus on healthcare given the poor state of public health and access to healthcare services in the country (Refer Table 2). Significant progress can be made to address this vital need of the people by leveraging the rising penetration of mobile phones (Refer Figure 2), and studying its increasing use globally to enhance the delivery of healthcare services.

Table 2: State of healthcare in India

Government initiatives	Launch of the 'Healthcare for all by 2020' program, along with the National Rural Health Mission, in 2005.
Regular outbreak of epidemics	Periodic and frequent outbreaks of diseases such as Dengue, Malaria, Chikungunya, Swine Flu have become commonplace. As an example, between April and September 2010, there were 3000 reported cases of Dengue in Delhi alone[23], which has relatively better access to healthcare services than many other parts of the country.
High prevalence of chronic diseases	There is an increasing spread of chronic diseases such as AIDS (India has ~2.3 million people infected by HIV), Diabetes (India has 50.8 million people infected by Diabetes, the highest in the world), and Blood Pressure[24].
Low Vaccination Rates	India has a very low usage of vaccines (Between 65 – 70%) for Polio and Measles[25].
Inadequate access to Healthcare	The number of physicians and specialists available in India are far below the global average and even below the guidelines set for India (Refer Figure 12) **Figure 12: Doctors per 1000 Patients (2009)**  Source: IBEF Report on Healthcare; Norms set by National Centre for Health Marketing US

23 Times of India article, August 2010

24 State of World Health, WHO (2010)

25 State of World Health, WHO (2010)

Current implementation of M-Health initiatives

Globally, M-Health initiatives have spanned across the three service categories of Information, Application and Enablement. Governments of many countries in Africa, Latin America, and the Middle East have adopted MVAS to spread awareness about, and thus control the spread of chronic diseases such as AIDS as a first step.

Additionally, MVAS has been used by many countries to increase access to healthcare services by initiatives such as providing training to healthcare workers, and interactive information services for particular medical conditions. Some M-Health services have also provided patients the ability to substitute a physical visit to the doctor by means of a digitized prescription.

Key M-Health services across the world

Service Category	Service	Examples
Information	Education and awareness around chronic, widespread diseases	**Cardionet (Mexico), Freedom HIV/AIDS Africa Reach program, Toll free government helplines for TB, Malaria, Dengue**
Application	Communication and training for healthcare workers	**Phone- and web- based information and communication system** in Nacer(Peru) for health professionals in remote locations
	Disease surveillance and epidemic outbreak tracking	**Controlling Dengue(Brazil)** (via customized questionnaires distributed to field health agents' mobile phones)
	Telemedicine	**Telemedicine helplines** which provide information on immediate action steps for a medical condition, including suggesting specialists are available in many countries. Some countries which have this facility are: Australia, Bangladesh, Canada, Colombia, Dominican Republic, India, Mexico, New Zealand, Pakistan, Philippines, South Africa, Trinidad & Tobago, UK and the US. **Maestros Mediline Systems (India)** have an application for BlackBerry phones which allows physicians remote access to patients' ECG and heart performance reports on their BlackBerry smart phones **TeleDoc (India)** provided handheld mobile phone devices to village health workers in India, permitting them to communicate with doctors
Enablement	Prescription management	**Regpoint (Sweden)** entails digitizing the patient prescriptions which enable patients to buy medicines from a drugstore
	Diagnostic and treatment support	**TRACnet (Rwanda)** is Rwanda's dynamic Information Technology solution designed to collect, store, retrieve, and disseminate critical program, drug, and patient information related to HIV/AIDS care and treatment. **Apollo and Aircel (India)** have a program where experts from Apollo diagnose the disease and offer advice, forward the call to the emergency room, and wherever possible fix an appointment with the doctor and deliver the medicine to the patient. **Narayana Hrudalaya and SANA** use mobile technology to enable early disease detection and thus creates a win-win situation for patients, hospitals and even insurance and wireless companies.
	Remote monitoring and Remote data collection	**Diabediario (Mexico)** is a solution for changing diabetics' lifestyles and for controlling and improving their adherence to their diabetic treatment. **Mobile radiology lab (India)** health care institutions can send reports via mobiles to the radiologist.

M - Health in India

In India, M-Health services are in a fairly nascent stage. A few pilots such as the Apollo-Aircel programs are being conducted but currently these services in India have shown little uptake / adoption. There is a lot of scope for immediate deployment of information based services on a large scale. Also, lessons from global initiatives in this area can help to deploy application and enablement services effectively.

Learnings from successful M-Health initiatives across the world

Some critical success factors for these services globally have been:

- Clearly specified regulations for content protection and patient confidentiality to ensure successful adoption of M-Health services

"Patients are very conscious of their ailments and have more trust for applications that provide consumer confidentiality. When this information crosses over to true patient specific clinical information, there are stringent laws for this in the US" – Co-Founder, Healthagen

- Heavily subsidized services for consumers so as to enable mass reach - Across the globe, M-Health information services, especially those initiated by the Government or NGOs are free of charge to ensure maximum reach

- Cooperation of government, telecom operators, healthcare providers to spread awareness about the applications/ services, e.g., Cell-Life (South African NGO) leverages the reach of its prime supporter – Vodacom, South Africa's leading telecom player for spreading awareness of the 'Cell phones for HIV' campaign

- Use of voice based services and applications, especially in developing countries, have a high potential for usage and growth, as they reduce the need for literacy and can be offered in local languages

There is potential for multiple operating models

- **Government driven** (e.g. Mexico, Canada) where the government ties up with the application developers to push various types of information – disease prevention / precaution / treatment and also vaccination details to the people. It requires support of various government health functions to be made available on the mobile platform.

- **NGO led** (e.g. Cell-Life in South Africa) where the NGO has tied up with a leading telecom operator and offers a variety of services such as information SMSes, interactive communication between patient and doctor, and location based services to the users

- **Telecom operator / Healthcare provider led**, where the operator ties up with a healthcare institution and provides the service and connectivity to the healthcare provider, thereby benefiting all – the consumers who get free/subsidized health care service and the healthcare provider as they get greater access to customers. An example of this is the Aircel-Apollo initiative in India, where customers on an Aircel network can connect to experts at Apollo.

Key Considerations for deployment of M-Health services in India:

- **Initiative by the Indian government**: While multiple models exist globally, in India, the government taking a lead will ensure that M-Health is adopted on a mass scale, including becoming accessible to the economically disadvantaged sections of the population.

- **Focus on voice based applications and simple technology:** In India, voice-based services will see maximum usage and growth since this reduces the need for literacy and can be offered in local languages. Also, simple, existing and affordable technology such as SMS needs to be used in innovative ways to facilitate access and spread the word.

- **Cooperation amongst government / telcos / health care providers:** These parties must work together to spread awareness of the applications/ services.

- **High quality, locally relevant information dispensed from a reliable source:** This will be key to ensuring success of the service. This can be achieved through effectives partnerships

between private parties such as telecom operators, local NGOs, and healthcare providers, and the government using a strong and well branched out data collection network and a team of doctors.

- **Clearly specified regulations by the regulator / government:** Regulations to be in place for content protection and patient confidentiality, in order to ensure the success of M-Health services.

There is clearly significant scope for M-Health services in India, from information services through application and enablement services. However, there is significant onus on the Indian government to take the initiative and facilitate growth of M-Health services in India. Specific regulations, right partnerships, widespread awareness campaigns, and ease of use are required for high adoption of any M-Health service in India

International Case Studies:

Case study 1: Cell Phones for HIV, South Africa[26]	
Background	• The key driver for this initiative was the high incidence of HIV in South Africa (almost 1,000 deaths occur due to AIDS every day). Lack of information about HIV/AIDS was identified as one of the key reasons for the high prevalence and spread of AIDS. • In South Africa, where 75% of the population has mobile phones, MVAS was devised as a potential solution to facilitate the dissemination of information about HIV. • This led Cell-Life, an NGO, to partner with the Treatment Action Campaign (TAC) to provide information to community trainers about HIV through mobile phones. The primary source of funding was Vodacom and/ or healthcare institutions by providing free SMSes. MXit, a popular social networking platform was leveraged to reach a wide target audience, especially the youth.
Service Description	• The service primarily uses the SMS and USSD channels to deliver information, either by way of SMS broadcasts or interactive SMSes with doctors. • Other than SMS and USSD, the program uses location based services, WAP, and Mxit (social platform for communication in South Africa) as data channels. • Using the interactivity of the service, doctors are able to monitor and evaluate patient conditions, while location based services guide patients to the nearest doctor/ physician. An Aftercare program is also run, and health consultancy is provided through the eventual set up of supporting physical infrastructure.
Impact	Key Benefits of the Program include: • Mass messaging for prevention • Mass information for positive living • Linking patients and clinics • Peer support and counselling • Building organizational capacity of HIV-related organizations • Monitoring and evaluation of HIV Affected Patients The program has reached 400,000 people to date and has 80,000 members in its interactive community
Key Success Factors	• Simple and clear mode of communication • Appropriate target segment– young adults who are technologically savvy • Support of Vodacom, for free SMSes
Future Plans	• Expansion of services to SMS counselling and regular updates for diabetes patients and pregnant women • Deployment of the service in other Sub-Saharan African countries

26 Primary interview with Cell-Life

"Patients are very conscious of their ailments and have more trust for applications that provide consumer confidentiality. When this information crosses over to true patient specific clinical information, there are stringent laws for this in the US"

Co-Founder, Healthagen

Case Study 2: Abu Dhabi M-Health initiative[27]

The population of the United Arab Emirates (UAE) is young, but is affected by a significant burden of cardiovascular disease (CVD) risk factors, particularly diabetes; out of the top 10 countries affected by diseases, six are among the Gulf Cooperation Council (GCC) members, with the UAE having the second highest incidence of diabetes in the world. In light of these facts, the Health Authority of Abu Dhabi (HAAD) developed an Abu Dhabi-wide health initiative (Weqaya – Arabic for "protection"). Weqaya began with the screening of all adult citizens; this was made mandatory for the issuance of a new health insurance card to help drive compliance. To date, 97% of adult citizens have been screened, establishing a population baseline and individual health data. Consent was taken for research and disease management, and mobile phone numbers and email addresses were gathered. Following Weqaya screening, and to ensure open access and the empowerment of those screened, each citizen was provided a confidential Weqaya Health Report with personalised preventive advice. In addition, a secure website (www.weqaya.ae) has been created that provides access to personal screening data, personalised advice and direct access to a range of actions that can be taken, including the booking of a clinic appointment and lifestyle changes for diet, exercise and becoming smoke-free.

HAAD divides the Weqaya program into 3 phases as follows:

Screen

- Individuals undergo a medical screening, using criteria developed from the FRAMINGHAM study (blood pressure, cholesterol, diabetes, smoking, family or personal history of heart disease) which together contribute 90% of CVD risk
- A co-ordinated approach was used to ensure a 97% rate of adoption combining encouragement, enablement and enforcement

→

Plan

- Evidence-based care pathways for screening and follow-up were designed
- A co-ordinated approach was devised for monitoring and driving patient and clinician compliance with the care pathways
- Menu of non-healthcare interventions including diet, healthy eating, physical activity and becoming tobacco-free were also put up

→

Act

- Health sector action is enabled by providing help in locating a number of preventive/remedial centers such as:
  - Clinics for CVD and Diabetes
  - Clinics for smoking cessation
  - Clinics for weight management
  - Disease management programs
- Action by other key sectors driving health are set in a Health Policy Agenda and tracked by HAAD

Building on the flexible database, and the existing web platform, HAAD is now building a range of additional secure channels including mobile applications, and home-monitoring and portable devices. In developing effective consumer products, HAAD is working closely with hardware and software developers to develop mobile applications (including iPhone and Blackberry as well as a simple 2G SMS platform). As the Weqaya programme continues to develop, HAAD aims to publish its results in health literature to help spread its learning.

"In 2012, when the National ID Cards i.e. UID are being issued, the government can look at collecting certain basic health related data for each recipient… they can spend ₹5 / person to capture basic height & weight data and upload through mobile phone to central database.. if they spend a little more and capture data relating to blood pressure, blood testing, etc… all this data can be analyzed and pushed back to provide intervention to individuals even at a village level… The overall savings level for the country at large would be an astronomical amount, especially if all stakeholders are incentivized in the right manner"– Director, Public Health & Policy, Health Authority of Abu Dhabi

27 Primary interview with Director – Public Health & Policy, Health Authority of Abu Dhabi

"In 2012, when the National ID Cards i.e. UID are being issued, the government can look at collecting certain basic health related data for each recipient… they can spend ₹5 / person to capture basic height & weight data and upload through mobile phone to central database.. if they spend a little more and capture data relating to blood pressure, blood testing, etc… all this data can be analyzed and pushed back to provide intervention to individuals even at a village level… The overall savings level for the country at large would be an astronomical amount, especially if all stakeholders are incentivized in the right manner" Director, Public Health & Policy, Health Authority of Abu Dhabi

Category 4 : M-Governance

The Case for M-Governance in India

- It is important for the government to deliver good governance effectively to all citizens as it is critical for the socio-economic development of the country. Giving citizens direct and convenient access to the government also helps reinforce the democratic setup.

- Providing good governance for India's 1.1 billion + people (July 2010 estimate)[28] is a task of mammoth proportions - one that is currently not very effective or efficient. The problem of deploying a uniform and effective governance framework becomes even more difficult as approximately 70% of the population is in rural India, where governance infrastructure in terms of people, processes and technology is significantly lacking.

- A number of state wide e-governance initiatives have been undertaken to make the governance system more effective. Some of the salient features and advantages of using an e-platform are:
  - While setting up an e-platform is an expensive affair, the benefits far outweigh the costs; as it enhances the efficiencies of the payment system by reducing leakages; increases the efficiency of delivery of services and lower administration costs. Leakages currently account for about 75-80% of the losses that the government suffers due to the manual payment system, while the share of transaction cost is estimated at 15-20% of the losses[29].
    Example: A National Rural Employment Guarantee Scheme (NREGS) worker loses as much as ₹6-7 in wages and travel costs to redeem the ₹100 (s)he earns for a day's work. The saving of ₹100,000 crore is equivalent to about 10% of the total payment flow between the government and households or equal to 20% of the fiscal deficit or 25% of the government's welfare spending[30].
  - While a number of state e-governance initiatives including e-Seva and e-Cops (AP Government), Community Information Centers (North Eastern States) and Computerization of the Registrar, Cooperative Societies have been successful, M-Governance has a greater potential as the PC and internet penetration in India is limited, especially when compared to the tele-density, with 670.6 million subscribers by the end of August '10[31].

- **Internationally, M-Governance is an add-on to the existing e-governance framework**, increasing the accessibility options for citizens at large. India needs to take this route for its existing e-governance initiatives and leapfrog the technology to M-Governance in the many areas e-governance does not exist today

Current implementation of M-Governance initiatives

- Some examples of M-Governance initiatives that have been undertaken internationally and in India include:

Type	Example [32]
Information	• **Hong Kong Government** sent SMSes to ~6 Mn mobile phone users during the SARS outbreak to provide regular updates, health tips and reduce panic amongst the general population • **Ministry of Agriculture (Malaysia)** sends SMSes to farmers' mobile phones alerting them of increased water level thus enabling them to take necessary steps to avoid any potential damage to their agricultural lands • **Singapore government and government agencies:** Timely and personalized SMS alerts and notifications for various services including renewals (passport, road tax), Central provident fund (CPF) account alerts, licenses, electoral division / constituency, contact information of government agencies and public officers on mobiles • **Kerala public service commission:** Candidates can send barcode number available on their application forms and get details of the various stages of the selection process • **Kerala state road transport corporation:** Citizens can receive a list of all long distance buses, including the detailed schedule for select buses, and the contact telephone numbers of important stations as a SMS reply • **Road transport authority, government of kerala:** Individuals can get the status of applications on sending the number available on the acknowledgement; receive details including 'tax paid upto", "insurance paid upto", engine number, chassis number etc can be given as reply of a SMS sending the registration number of the vehicle (This service will be very useful for a person who wants to buy a second hand car), and also information regarding the availability of a fancy number
Application	• **Ireland:** People can use Multimedia SMS (MMS) to send the photos of criminal suspects to the law enforcement agencies • **Philippines:** Reporting criminal offence using SMS Technology • **Turkey:** A host of government applications, including SMS technology being used by citizens to pay their taxes, and for polling for local governments. Moreover, small applications are being developed to target specific citizens such as sending automatic birthday wishes

28 Central Intelligence Agency
29 Economic Times, November 2, 2010
30 Economic Times, November 2, 2010
31 TRAI
32 Secondary research

Type	Example
Application	• **Kerala State Film Development Corporation:** Citizens can book tickets through their mobile phones in certain theatres across the state
Enablement	• **Brazil:** AESSIMS is designed to build health capacity at the field level by enabling front-line health workers to report disease incidence through an innovative combination of telephone and web based technology that leverages available infrastructure. AESSIMS enables health officials to better understand the scope of disease impact and strategically allocate resources to areas with the highest prevalence and need. • **Czech Republic:** mVoting by municipalities on various issues such as getting citizens' consensus on a certain issue • **Philippines:** TXT CSC is an SMS service launched by the Civil Service Commission (CSC) in Philippines. Its aim is to increase the efficiency and speed of service delivery. Citizens use this service as a weapon to pressurize the government agencies to move towards this goal

M-Governance in India

- The Government of India has drafted and has been propagating the National e-Governance Plan (NeGP). While 14 major e-governance initiatives have already gone live, the Government expects all the 27 mission projects envisaged in the e-governance blueprint to take off by 2014. It has also committed to pumping-in ₹20,000 crore on these initiatives[33].

- Of the 1,100 citizens and business centric services targeted for delivery, over 600 services are now available electronically. For instance, citizens can now obtain copies of their land records, job cards for employment under MNREGS, and certificates (relating to birth, death, income, and caste) online.

- So far over 80,000 Common Services Centres (ICT kiosks through which e-governance services will be delivered) have been set up across India; the number is expected to reach one lakh by the end of the fiscal. Estimated number of Common Services Centres is 2,50,000 by 2012, covering all Panchayats[35]

Some of the state wide initiatives undertaken include:

33 Website of the National eGovernance Plan

34 Website of the National eGovernance Plan

35 Website of the National eGovernance Plan

36 Source: Voice & Data, January 2010

State	Initiative Description
Bihar	The Government has implemented various schemes such as NREGA, Old age Pension, IAY, Uniform for the Girl Child, Scholarship, Food grains for BPL families etc directly touch the lives of the poor many of whom are in villages where implementation and monitoring is an issue. The General Administration Department (GAD) has developed a Web Based Scheme monitoring system where each government official responsible for implementing any of the schemes, has been brought under a Common User Group (CUG) network of a cellular service provider. The responsible official is expected to send an SMS in a pre-defined format to a pre-designated number. This information is then aggregated and displayed in the form of a comparative analysis between districts/blocks within a district can be done. The comparative performance reports across districts would facilitate the Head of the Department in taking remedial action pertaining to any district or block within the District.
Kerala	Has been the first to take up a number of initiatives in this regard and the National e-Governance Plan (NeGP) has enabled the Kerala state government to be at the forefront of implementing ICT projects. The infrastructure that has already been built up such as the State Data Centre, KSWAN, Akshaya (CSC) etc. will provide the perfect platform for the State to take its functioning to the next level of Governance namely M-Governance. The State Government has initiated action to set up about 20 m-government services to be offered by eight departments
Goa	Taking a cue from the Kerala Government, the Goa government is setting up the infrastructure to provide various M-Governance services to its citizens. It is also in the process of setting up a central facility which can be used by other State Governments to provide M-Governance services, using a 'cloud computing' model
Nagaland	Intends to use the central facility set-up by the Goa Government to offer various M-Governance initiatives to its citizens

"Government ministries and agencies related to M-Governance application should be involved in the planning and implementation phase. This will ultimately lead to a change in attitude towards provision of services and transform their models of providing public information to citizens" – Special Secretary, IT and Electronics, Government of Uttar Pradesh[36]

Learnings from successful M-Governance initiatives across the world

Examples of successful operating models across the world:

- For Information based services, it is critical to link all government systems / databases to a mobile platform that enables effective and timely delivery of information.
  - Services include disaster management updates, farmer's welfare, advanced natural calamity warnings, etc.

- For Application and Enablement services, two operating models have been observed:

1. *Empowering all staff with mobile devices (possibly smart phones) with relevant applications* to collect data at the ground level and share it back with the concerned agency for action. A successful example of this model is the rollout of various mobile-governance initiatives in Beijing, China aimed at improving overall efficiency of government departments / public facility

   Case study: At district levels, public facilities and public service companies, different governmental departments at municipal level were connected to enable a fluid cooperation and interaction among the government departments, public facilities and services, businesses, and citizens.

   The entire Dongcheng District was divided into a grid, with all the facilities mapped and coded into cells. All staff was equipped with GIS / GPS enabled handheld devices with inbuilt camera and GPRS connectivity, and were deployed on the streets to capture / report any data on public facilities / utilities that weren't working right. This information (in terms of pictures with location) was uploaded onto a central server from where it was sent to the concerned agency for action to be undertaken.

   Looking at the success at city administration levels, the China government has undertaken more initiatives in the areas of trade and industry, tax and police on similar lines.

2. *Giving citizens' access directly through their mobile phones*

   This model is being successfully followed in Dubai, where a host of mobile based government services are offered, such as mPay (payment channel for government fees), mParking (pay for parking) and mDubai (two way communication between government and citizens, including public announcements, flight details, traffic fines enquiry, violation enquiry, and prayer timings enquiry) on the mobile platform to enable citizens to interact seamlessly with the government.

Key considerations for deployment of M-Governance services in India:

- **All M-Governance initiatives need to be driven directly by the country's top leadership** (e.g. District leadership in Dongcheng District, Beijing) or by a government body (Dubai eGovernment)

- **All government agencies need to work in tandem,** understand critical needs, prioritize services, create a central repository of relevant and updated data – citizen records, government records, etc

- **There is a need to ensure widespread mobile connectivity** for voice and data across urban and rural India. It would be imperative to use the voice platform as well as localized content to ensure relevance / context and ensure widespread adoption

- **There is a need for collaboration between the government and all operators** to ensure 100% reach

- **The government should look at offering all information based services on a no-fee basis**[37]

- **The government should work to ensure all stakeholders receive adequate returns** to stay committed to the cause, and invest in increasing reach and developing innovations for further enablement

"One of the biggest drivers for M-Governance is its outreach. One can, now potentially enhance the outreach to millions of citizens simultaneously at the touch of a button" – Additional Secretary, IT, Government of India[38]

In conclusion, there is significant scope for M-Governance services in India as M-Governance is in a

37 Interview with Sanjay Vijayakumar, Co-Founder and CEO, mobme

38 Source : Voice & Data, January 2010

39 Secondary research

relatively nascent stage currently. While many innovative applications are underway in both private sector as well as government domains, it may be a little premature to celebrate its success as we still wait to see the full extent of their impact. However, embracing the possibilities and opportunities that this technology provides will only lead to an effective and cost-efficient way of exploiting the M-Governance opportunity.

Case study 1 : Mobile Service initiatives undertaken by the Dubai eGovernment[40]

Looking at the extremely high mobile phone penetration in the UAE, the Dubai eGovernment created a number of mobile solutions that would enable an 'always on' connect between the Government and the citizens. This initiative extended the functionality being offered through the e-Governance route onto the mobile platform. There is an ongoing program to increase online adoption of government services and help improve performance and customer satisfaction within all government departments

The services offered are:

- mPay - An emergency payment gateway developed by Dubai eGovernment particularly to be used in situations where users have to make emergency payments of fines or fees for a continued service or charges to avoid a new fine.
- mParking – A service that allows motorists to pay for their parking using their mobile phones by simply sending an SMS. The service also alerts the motorist via an SMS prior to permit expiry and if needed the motorist can extend his/her parking period from his/her office or home.
- mDubai - A two-way communication channel between the Dubai government departments and their customers. The push service allows government departments to send transaction information to the customer through SMS. It can also be used by the department to send public announcements about its services and activities. Examples of the pull service include flight arrivals and departures, traffic fines enquiry, violation enquiry and prayer timings enquiry.

The initiative has helped transform the existing eGovernment initiatives onto the mobile platform, thereby bringing in a significant amount of efficiency into the governance system. Additionally, it has also empowered citizens, giving them the freedom of conducting a number of government related transactions such as emergency payment of fines or fees, pay for parking, traffic fine enquiries, and violation enquires from Department of Economic Development, amongst others, using their mobile handsets. Some of the key success factors are:

- Having a successful e-Government framework as the starting point for offering M-Governance services
- Robust databases and mechanism with the concerned departments to share correct / updated / relevant content with the users
- Trained and enthused staff of the government departments who respond quickly to any specific queries sent to them
- Selecting and prioritizing services that are likely to have maximum benefit to consumers

40 Secondary research

"Government ministries and agencies related to M-Governance application should be involved in the planning and implementation phase. This will ultimately lead to a change in attitude towards provision of services and transform their models of providing public information to citizens"

Special Secretary, IT and Electronics, Government of Uttar Pradesh

"One of the biggest drivers for M-Governance is its outreach. One can, now potentially enhance the outreach to millions of citizens simultaneously at the touch of a button"

Additional Secretary, IT, Government of India[38]

Case study 2 : m-Government Initiative in Dongcheng District, Beijing, China[39]	
Background	As the fragmented, highly bureaucratic and inefficient city management problem is widely acknowledged, the leadership of Beijing decided to take advantage of ICT to reinvent the municipal administration. Dongcheng District became the first district in Beijing to pilot this initiative. It included many facets from the municipal administration to the management of urban infrastructure (street lighting, drainage, water supply facility, all kinds of underground pipelines etc.), housing, gardens, construction, environment protection, and city appearance. A thorough survey about the public facilities (public conveniences, bus stop signs, public telephone booths, manhole covers, etc.) in the district was also carried out to map the locations of each public facility in the GIS system. In this project, the District Government split the supervision function from the management function. Two centers were established: the Supervision Centre and the Command Centre. The municipal administration supervision centre was newly established to be independent of the existing municipal administration commission. The supervisors patrol their responsible areas to spot, check, report, monitor
Service Description	The system will not only connect all the information platform at district levels, but also connect all the public facilities and public service companies (such as public transport companies, power supply companies, central heating companies, water supply companies and waste management companies) and different governmental department at the municipal level (such as Beijing Municipal Committee of Communication, Beijing Construction Commission, Beijing Water Authority, Beijing Environmental Protection Bureau, Beijing Municipal Bureau of Parks, Beijing Traffic Management Bureau etc.) to enable a fluid cooperation and interaction among the government departments, public facilities and service business and citizens to make delivery of governance services more efficient and effective.
Key Benefits	Helped move from a fragmented, highly bureaucratic, inefficient governance style to one that supported problem identification and confirmation by mobile supervisor real-time, better information sharing, better coordination, more efficient problem solving, better performance evaluation, fluid work practice, and eventually build up trust Till the end of 2005, the information of 1.37 million public facilities have been surveyed and put into the data base. A total of 4600 smart phones have been purchased by Beijing and have been allocated to the eight urban districts of Beijing. 1706 mobile supervisors are already deployed in the eights district of Beijing
Key Success Factors	In the case of Beijing, the forming of the multi-disciplinary, multi-department taskforce, which is headed by the top leader, to lead the initiative not only provides expertise, technology inventory, but also provides adequate authority to reengineer the process. Proper publicity and training is key to the implementation of the initiative. The involvement of the top leadership of the district in the initiative and their full support has certainly been a key factor to success.
Future Plans	Post the success in the Dongcheng district, the initiative was rolled out across all of Beijing under the Informational City Management Platform at a municipal level, and is established in the Beijing Municipal Administration Commission (BMAC).

Current state of Utility MVAS in India

India today recognizes the need for leveraging technology to accelerate the pace of development in the country. Inspite of a lack of cohesive effort, there have been pockets of strong effort by various agencies, both government and private, to tap into the power of MVAS to reach consumers with essential information and services.

Various telecom operators have launched application stores which house applications from entertainment to commerce. While the focus today is largely on entertainment applications, this is a ready platform for hosting applications which can serve the larger needs of the community. Operators are also exploring other avenues such as tie-ups with service providers (e.g. Aircel tie up with Apollo for telemedicine) to launch services in this space.

A keen area of interest is the M-Commerce space where major players such as Bharti are looking to enter in a big way. Key private and public sector banks are also participating in pilot initiatives to deploy person-to-person money transfers using the gateway devised by the National Payments Corporation of India (NPCI). On the regulatory front, RBI is looking at various ways to enable M-Commerce without compromising the security and privacy of the public. It has already relaxed mobile banking policies and increased the mobile payment limit to ₹50,000.

"M-commerce will be huge – hence we are investing a lot of time and effort in building a vast ecosystem especially in Tier II cities, becoming an active partner in large Government projects" – Head, Services Marketing and Devices OPM, Leading Handset Manufacturer in India

Both private and government bodies are also looking at various ways of leveraging the UIDAI initiative. The UIDAI initiative enables uniform and simplified authentication which can pave the way for various MVAS services, especially in the enablement space.

While market and government forces are colluding to take steps in the right direction, Utility MVAS has significant growth potential. The section below outlines some critical requirements for the growth of Utility MVAS in India based on generic success factors for the growth of any industry. This framework has been further used to identify the challenges faced and examine potential solutions to these challenges.

Critical Success Factors for the growth of Utility MVAS in India

Based on the industry knowledge and experience of Deloitte and ASSOCHAM, we have identified key critical success factors (Refer Figure 13) for growth of any industry / industry segment:

Policy Framework

A policy framework can be understood as the underlying set of guidelines governing an industry, which serves to provide a vision, and direction, taking into account the unique characteristics, needs, and impact of that industry.

Today, MVAS is not recognized as an industry in India. Telecommunications has, from the perspective of policies and regulations, traditionally meant exclusively voice. Even with respect to data, there are no norms for the security, privacy, quality of data transmitted using mobile phones. Moreover, there is no defining industry body which lays down broad roles for the various ecosystem partners, and helps to foster equitable growth.

Support Infrastructure

Any industry requires the presence of adequate infrastructure in order for it to truly realize its growth potential. The definition of infrastructure is broad and can include roads, transport systems, physical set-ups, to telephone, internet, and mobile connectivity.

For Utility MVAS to have a far reaching and significant impact, the ecosystem will need a robust supporting infrastructure of high quality network infrastructure, coupled with adequate mobile phone penetration. Growth of mobile phones along with falling prices, coupled with entry of 3G is an encouraging trend. However, low connectivity in rural areas (~23% penetration) and low penetration of smart phones continues to be a large constraint, especially for Utility MVAS applications and services.

High Equilibrium Ecosystem

An ecosystem which has an equivalent participation from all value chain players, and facilitates fair distribution of benefits ensures the long term growth

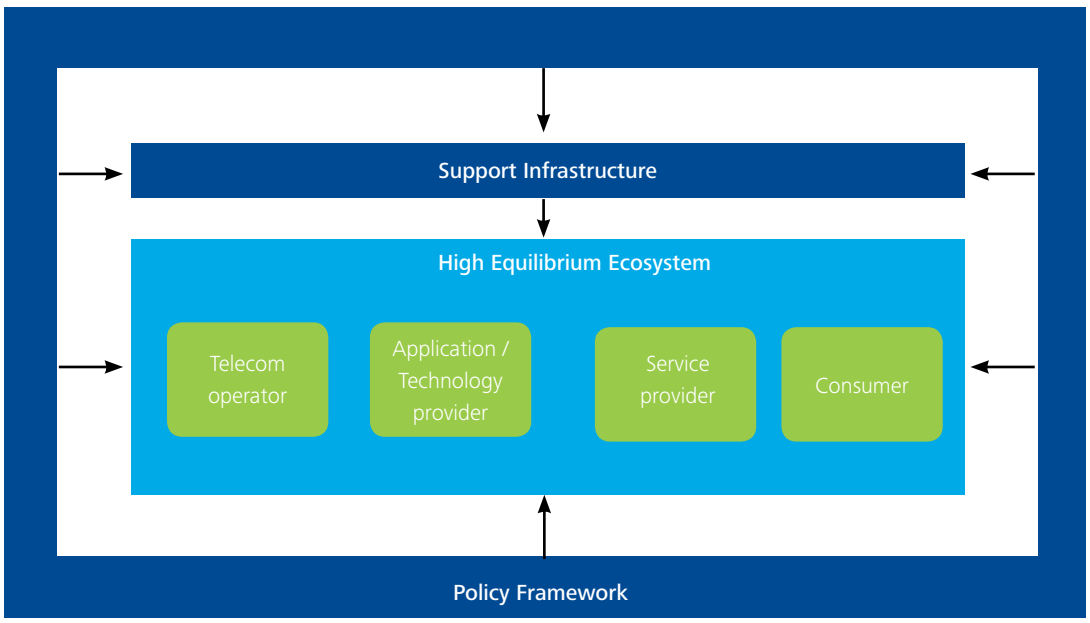
and sustainability of the industry. This can be termed as a high equilibrium ecosystem having a self-correcting, and self-sustaining mechanism which generates higher momentum for growth, while at the same time maintaining internal equilibrium.

Adequate consumer demand from the consumer and sustainable business models for all players in the value chain driving supply is key for the MVAS industry. Consumer awareness , affordability, lack of motivation for content developers, lack of trust / transparency between telcos and content providers, lack of impetus for innovation are other ecosystem issues which need to be addressed by the various value chain partners in order to enable the ecosystem for MVAS, and sustain its growth.

"We are working with all players in the ecosystem to help them deliver an end to end solution for mobile wallet for their customers by offering a combination of Wallet platform, handset java interface, merchant services on internet, physical merchants & wallet loading at retail touch points" – Group President, Oxigen Services India Private Limited

Analysis of the various problems currently ailing Utility MVAS in India today reveals that most issues are endemic to the ecosystem, whether it is fair revenue share, transparency, innovation, or sustainable business models. For an industry to be successful, it has to rely on market forces to correct these inherent problems. Experience has shown that regulation driven businesses rarely achieve the desired rapid growth, and to stifle the stunning growth of the telecom industry in India by way of heavy regulations would not be advisable. However, at the same time, minimum guidance and policies around MVAS would help to give direction to the industry and help to facilitate negotiations amongst ecosystem partners. This is especially relevant with respect to Utility MVAS. A good corollary is the National e-Governance Plan (NeGP) which laid out a very clear mandate for the deployment of e-governance services, along with commissioning the National Institute of Smart Governance (NISG) to facilitate deployment of the 27 projects laid out by the plan. While this may not be an exact analogy, as in the larger MVAS picture private players have a far more significant role to play but recognition of this industry, its unique needs, and a vision and framework would go a long way in mobilizing the ecosystem. Also, for Utility MVAS in particular,

Figure 13: Critical Elements for Industry Success



there is a need for greater government initiative and participation, and creation of extensive infrastructure, which will perhaps also stem from a well laid down policy.

Over and above the policy framework, the ecosystem needs to identify and address the problems that are impeding its growth, and undertake measures to rectify those, including taking learnings from other geographies, and creating more sustainable business models.

Lastly, a supporting infrastructure will enable a high equilibrium ecosystem to truly take advantage of the large untapped opportunity that India presents to offer services that benefit the masses, as well as, create a whole new portfolio of services.

Thus, while the policy framework sets boundary and gives direction, the support infrastructure provides the critical base required for the ecosystem to be built.

Figure 14: Critical Elements for Industry Success: Status of MVAS

Critical Factors	Status	Rationale
Policy Framework	○	× Lack of recognition of MVAS as an industry × Absence of guidelines for the various MVAS industry players × Lack of government initiative
Support Infrastructure	◑	✓Increasing subscriber base, propelled by falling handset prices ✓Impending deployment of 3G services × Inadequate infrastructure in semi - urban and rural areas × Lack of consumer authentication and system security infrastructure × Lack of micro - payments infrastructure
High Equilibrium Ecosystem	◔	× Inequitable Revenue Share × Lack of transparency between telcos and content providers × Lack of innovation × Multiple operational challenges

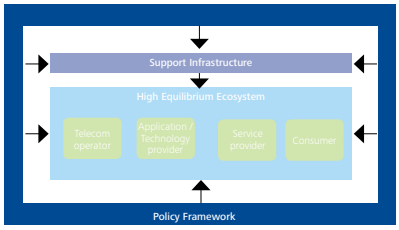
○ Very low ◔ Low ◑ Medium ◕ High ● Very High ✓ Enablers × Challengers

Source: Primary interviews, Deloitte research

As shown in Figure 14, Utility MVAS in India currently faces multiple challenges arising out of inadequate progress on the elements critical to its success.

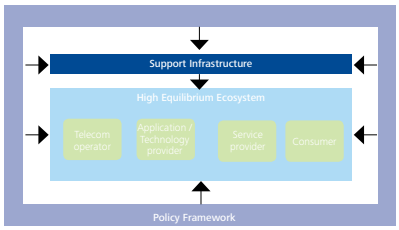
Utility MVAS: Challenges

Keeping in mind the critical success factors for Utility MVAS discussed above, numerous challenges have been identified:



Policy Framework

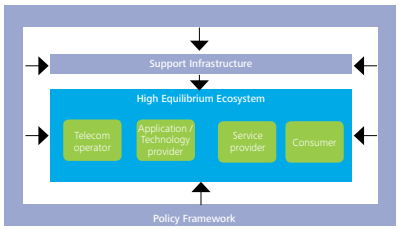
Challenge	Description
Lack of recognition of MVAS Players	• Lack of guidelines for the various players that hold them accountable for – Consumer rights – Content • Lack of a platform for MVAS players to raise their concerns • Lack of dispute resolution mechanism • Lack of regulatory framework or guidelines, especially related to privacy, legal liabilities, etc. • Lack of cohesive initiatives to foster growth in the MVAS provider community
Lack of government Initiative	The government is currently playing a limited role in the promotion and adoption of Utility MVAS, including building robust support systems such as inter-ministerial panels for cohesive policies, dispute resolution, etc.



Support Infrastructure

Challenge	Description
Inadequate infrastructure in semi-urban and rural areas	• Lack of sufficient network infrastructure/connectivity • Lack of sufficient cell phone/smart phone penetration
Lack of consumer authentication infrastructure	Limited ways of consumer authentication, especially for those services involving exchange of sensitive information, such as payments. Currently, security and privacy features around data transfer for MVAS services are not adequate. Storage of data on remote databases, secure encryption for data transfer, and privacy protection of consumer data are some of the issues.
Lack of micro-payments infrastructure	Limited micro-payment infrastructure, discouraging an operator disintermediated model, which can support rapid scaling of operations for independent VAS providers.

"There has always been an online versus offline apps debate, though it needs to be driven primarily by the infrastructure as well as acceptance by the user public at large" – Lead ICT Policy Specialist, World Bank

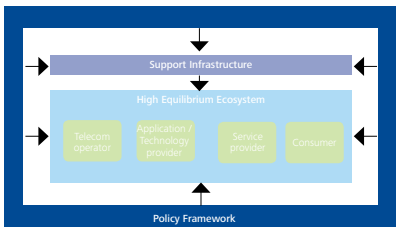


High Equilibrium Ecosystem

Challenge	Description
Inequitable revenue share	Inequitable revenue share model in favor of operators due to their investments in network infrastructure, ownership of relationship with the subscriber, billing and collections and associated risks. In most cases, operators retain 70-90% of revenues generated by MVAS applications. This makes it difficult for the VAS provider to grow or invest in innovation.
"With the 3G roll out operators should part with a bigger share of the pie to make money out of the data business and encourage the ecosystem to develop innovative apps"– Head, Services Marketing and Devices OPM, Leading Handset Manufacturer in India	
Lack of transparency between telcos and content providers	Unwillingness/ delay of operators to share usage/ billing data with VAS players, including lack of fair grounds for disclosure and data reconciliation
Lack of Innovation	Unwillingness of various MVAS players to constantly innovate and develop newer ways to promote adoption
"We have coders, not application developers" – Head, Services Marketing and Devices OPM, Leading Handset Manufacturer in India	
"I cannot invest in R&D and innovation to the extent I would like to, due to poor returns from operators, no government support, absence of incentives such as tax breaks" – CEO, Gaming VAS player and Chairman - MVAS Committee, IMC	
Multiple Operational Challenges	While deploying Utility MVAS initiatives, multiple operational challenges are encountered such as • Inability to ensure relevance of service by understanding consumer needs • Inability to keep products affordable • Inability to obtain the right partners and build the ecosystem • Inability to generate consumer awareness • Need to make significant investments on business models which have a long gestation period • Ensuring inter-operability of applications across operating systems/network architecture so as to not incur incremental set-up costs
"Content and Services should be contextually relevant to the audience"– Joint MD, Spice Mobility	
"Context specific content generation is an issue" – VP, Applications Technology Group, Leading Telco in India	
"There is a lot of on-the-ground traction, but when it comes to putting money on the table, nothing happens. This may be driven by the fact that mobile operators are currently dealing with customer churn, and are not willing to invest into such services in the current context while the institutional players have just about started accepting mobile operators as a competent marketing channel" – Head, Strategy & Market Development, AGC Networks	

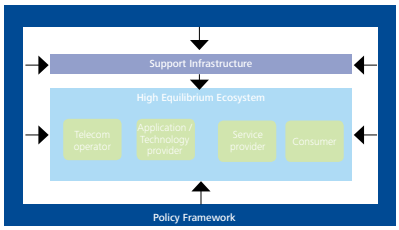
Utility MVAS: Potential solutions

Based on learnings from global case studies and their applicability to the Indian ecosystem, potential solutions to the challenges have been identified. The following section outlines some of the recommendations to tackle the challenges discussed above:

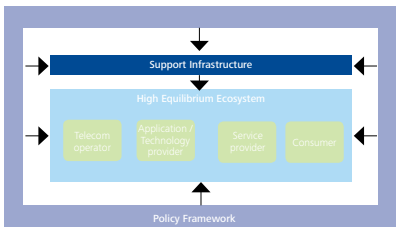


Policy Framework

Recommendations	Responsible Party
Recognition of MVAS players by the telecom industry Providing recognition to MVAS is critical for the growth of the segment. This recognition can be provided through multiple ways : a) Licensing for the MVAS Players: Bringing the MVAS Players under the OSP (Other Service Provider) license by DoT b) Providing industry status to MVAS The above will potentially open multiple doors for the growth of MVAS through potential incentives in the future viz. Tax Rebates, Government earmarking funds for MVAS, etc. Certain other steps can be taken to ensure its growth: • Develop a vision for MVAS in India • Issuance of guidelines on following aspects – Mandate for only registered MVAS providers to be able to provide services through operators – Consumer rights : Consumer protection guidelines for content providers need to be clearly stated (Refer Figure 15 for similar guidelines in Singapore) – Accountability for content and quality of service • E.g. If any operator is providing news content, it has to come from a licensed service provider. Similar guidelines could be defined for various types of content – Guidelines for a legal framework for protecting legitimate concerns of stakeholders e.g. content providers, operators : these may include privacy protection laws, legal liabilities' ceilings, thus reducing unnecessary or frivolous law-suits and also alleviating concerns around risks for players associated with Utility MVAS, especially in the M-Health and M-Commerce categories – Provision of short codes by DoT directly, in order to facilitate direct monitoring by TRAI – Set up of a dispute resolution body for MVAS providers/ bringing MVAS providers under the jurisdiction of TDSAT/ TRAI – Irrational pricing, e.g. if revenue share is drastically cut by operator (after initial agreement) without any stated reasons – Transparency between different stakeholders, especially between the telcos and content providers, including timely disclosure of usage/billing data – Timely disbursement of revenue share • Create a framework for data services which provides role definition for each of the value chain players/ stakeholders – For example in Singapore, there is a regulatory framework for Data Services (Refer Figure 15), which identifies guidelines for various types of data : General IT services and Mobile Device Content	TRAI

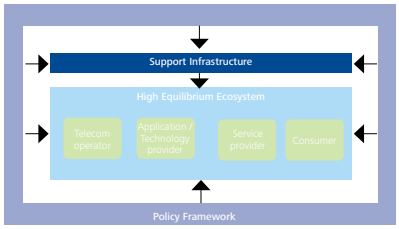


Policy Framework



Support Infrastructure

Recommendations	Responsible Party
Provision for an entity, similar to SBO in Singapore, to expand the industry For example Singapore *(Refer Figure 15)* has a concept of Service Based Operator (SBO): The SBO is a licensed player, who pays a fixed rental payment to the operators and is accountable for content. They are also fully responsible for marketing and quality of service.	TRAI
Prioritization of Utility MVAS Initiatives Setting up of a special advisory committee for Utility MVAS which co-ordinates between various government ministries to • Understand key governance and other basic needs of the public. Prioritize needs which can be addressed through mobile technology • Draw up a menu of services to be provided to the public and provide tax incentives for these services e.g. waiver of 15% taxes on revenues for services provided under this category, tax holiday for a certain period • Provide guidelines of equitable revenue share for these services	Government
Increased access to handsets • Setting up of smart phones booths in rural areas. Models such as these have been implemented in South Africa where operators have to set up this infrastructure as part of the licensing agreements with the government • Dissemination of smart phones and training on their usage to certain key individuals such as teachers/ health care workers/ gram panchayats in order to deploy basic services on the mobile phone **Acceleration of the set-up of network infrastructure/towers, especially in non-urban areas** **Deployment of innovative payment mechanisms**, devised and utilised by VAS providers • Example: The National Payments Corporation of India (NPCI), set up by RBI, as an umbrella institution for all the retail payments system in the country, is currently piloting a Person-2-Person money transfer mechanism called the 'Interbank Mobile Payment Service (IMPS)'. This is a mode which can be leveraged by VAS providers to obtain payments • Currently the NPCI is working with UIDAI to create a mobile banking system for the unbanked sections of society, though this is still in process **Guidelines around security and privacy for data transfer need to be set in place for MVAS, including for,** • Placing of data servers in the country/ access to data by the government for security reasons • Use of secure encryption technologies such as double encryption for data transfer, especially for transaction type services	Government/ Telecom operators

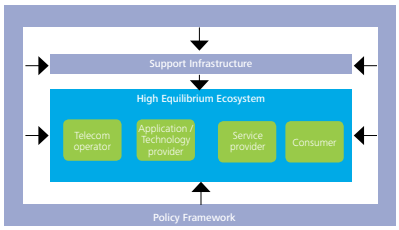


Support Infrastructure

Recommendations	Responsible Party
• Misuse of consumer information and consumer privacy protection **Simple authentication mechanisms can be devised to enable transactions, including by leveraging UIDAI** Various value chain partners including handset manufacturers (e.g. Nokia) and operators (e.g. Bharti) are working with the Unique Identification Authority of India (UIDAI) team to figure out the execution of electronic authentication using mobile phones)	Government/ Telecom operators

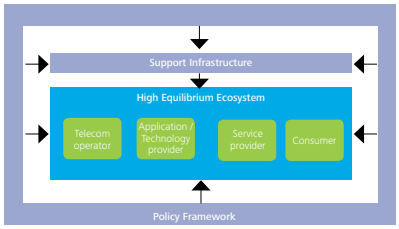
"'Government agencies and service providers such as banks and telecom operators will be able to instantaneously verify and provision new customers by using the UID platform - this will not just reduce costs but also enable frictionless on-boarding and delivery of services to the masses" – Volunteer - Financial Inclusion & Mobile Strategy, UIDAI

"UID can move the needle by miles" – VP, Applications Technology Group, Leading Telco in India



High Equilibrium Ecosystem

Recommendations	Responsible Party
Awareness campaign by TRAI, through Cellular Operators Association of India (COAI) and directly, to make various stake-holders aware of the advantages of equitable revenue share and transparency. One of the ways could be through sharing case studies on how telecom operators globally have succeeded through adopting transparent methods and providing greater revenue share to other value chain players e.g. DoCoMo in Japan and its i-Mode application	TRAI / Cellular Operators Association of India (COAI)
Support for incubating entrepreneurs/ application developers/ content provider community • Government: Creation of a category / Ear marking funds for application development and content generation , especially those that seek to address inclusive growth challenges (For e.g. this can be done as part of the INR1000 cr. National Innovation Council) • Others: Telecom operators can also create incubation funds for application development in an open source platform environment (e.g. SingTel, the leading telco in Singapore has a USD 200 Million fund to develop applications on open source platforms) • Facilitation of skills/ business development for VAS providers by appropriate industry body For e.g. Mobile Computing Promotion Consortium (MCPC) in Japan trains application developers on technical skills required and facilitates required partnerships	All stakeholders

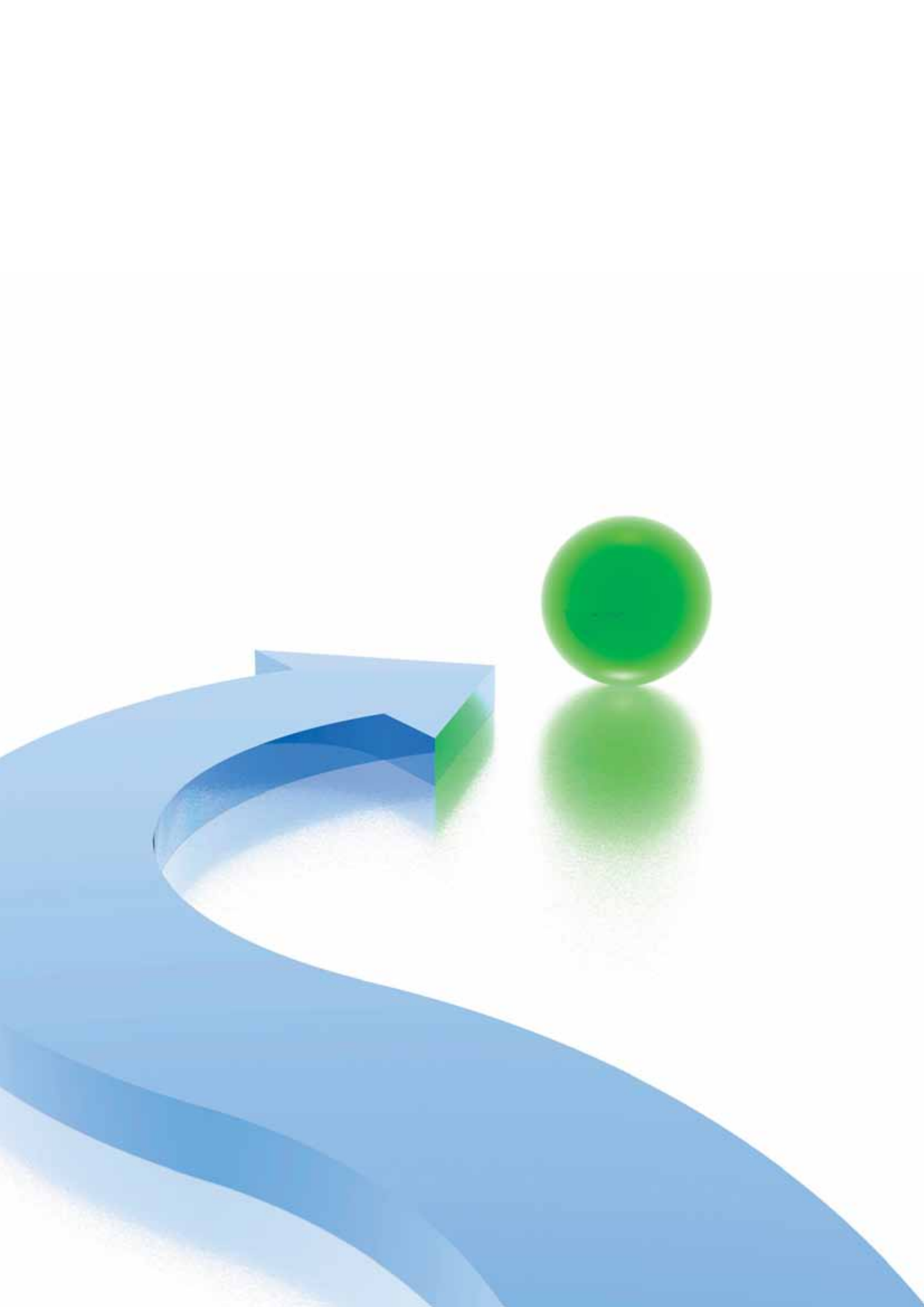


High Equilibrium Ecosystem

Recommendations	Responsible Party
Facilitation of Utility MVAS Initiatives • Collaboration with other governments and NGOs which have successfully implemented relevant MVAS initiatives for public welfare such as Governments of Singapore, South Africa, and China, as well as multi-lateral development funds e.g. USAID, UNDP etc. to understand key challenges faced and critical actions required for success • Effective partner search for relevant services in all parts of the value chain: telecom operators, application developers, and content providers (e.g. health care institutes, educational institutes etc.), foreign collaborators who have successfully deployed initiatives (e.g. Safaricom, Mxit, Commonwealth of Learning teams etc.) to co-create successful applications/models • Ensure relevance of service – Leverage consumer data available with operators to ensure context based services – Leverage consumer data available with the Government records, such as literacy rates, health related information, etc. • Ensure affordability – Making governance and basic services free/ nominally chargeable for end consumers through appropriate arrangements with operators (e.g. Singapore government mandates that operators cannot charge premium rates for governance services) – Setting of ceiling price for Utility MVAS services by the Government: This has to be done keeping in mind the cost structure of the operator. Key considerations would be the major costs in capex (network infrastructure) and marketing – Understand the present system cost the consumer has to incur and set a commensurate price point For e.g. Nokia charges farmers ₹60 for 2 months of continuous information regarding prevailing mandi prices which is more than commensurate for his transport cost of going to the mandi and opportunity cost of working • Build consumer awareness: Spreading of education and awareness about Utility MVAS initiatives through TV, gram panchayat networks etc. (this will also reduce marketing cost of the operators). Success of the Pulse Polio Campaign is evidence of the results it could achieve • **Interoperability : Government may play a key role in encouraging open source based platforms** For e.g. Nokia has recently announced a project release of MeeGo software. MeeGo is the open-source next-gen operating system for computing devices jointly developed by Nokia and Intel, For e.g. OperaMini works to develop applications which work across handsets	Government/ Private players in the Utility MVAS ecosystem

Figure 15: Singapore SBO Concept & Consumer Protection Guidelines

What is an SBO?	• Service Based Operation (SBO) are those intending to lease telecommunication network elements (such as transmission capacity and switching services) from any Facilities-Based Operator (FBO) licensed by the Infocomm Development Authority (IDA) so as to provide their own telecommunication services, or to resell the telecommunication services of FBOs to third parties • Operators who have deployed telecommunication network, systems and facilities within their own property boundaries, but wish to offer telecommunication services to third parties resident within their property boundaries • The SBO licenses issued by IDA fall under two categories: the SBO (Individual) License category, and the SBO (Class) Licence1 category
Consumer protection guidelines for content providers	• All advertisements must clearly state a description of the service, pricing, the name of the company offering it and their consumer hotline. It should in no way be misleading, confusing or leave any ambiguity. • They must provide a purchase key word and cannot authorize the service until they receive this back via electronic message • Must authenticate end user for services delivered to mobile phones which may be purchased or subscribed via Internet registration – authenticate via receipt of SMS key word and a confirmation SMS or phone call • Must provide confirmation and reminder messages for subscription-based services • Must enable end users to unsubscribe from subscription-based services • Must indicate charges in all chargeable messages – including additional charges for using the service along with activation/ purchase charges • Cannot charge for unsolicited services • Must not collect payment for any services the consumer feels he has been incorrectly billed for and has filed a complaint • Cannot reuse or disclose personal information for any other purposes apart from internal audits/checks.
Content Monitoring	• Singapore primarily has two regulators – IDA and Media Development Authority (MDA) • The IDA is the primary regulator that issues licenses for all telecom and VAS services - these may be FBO licenses or SBO licenses • The MDA is the authority that supervises and regulates all content that is aired in Singapore across all channels, including across Mobile networks as part of MVAS • They have stringent guidelines for publishing/distributing all possible kinds of media split as – Arts and entertainment, films and videos, publications and audio materials, TV, Audiotext, Internet, Radio, Video games and Consultation papers • The MDA has rights to monitor all content and can also impose fines or in extreme cases bans on certain content providers

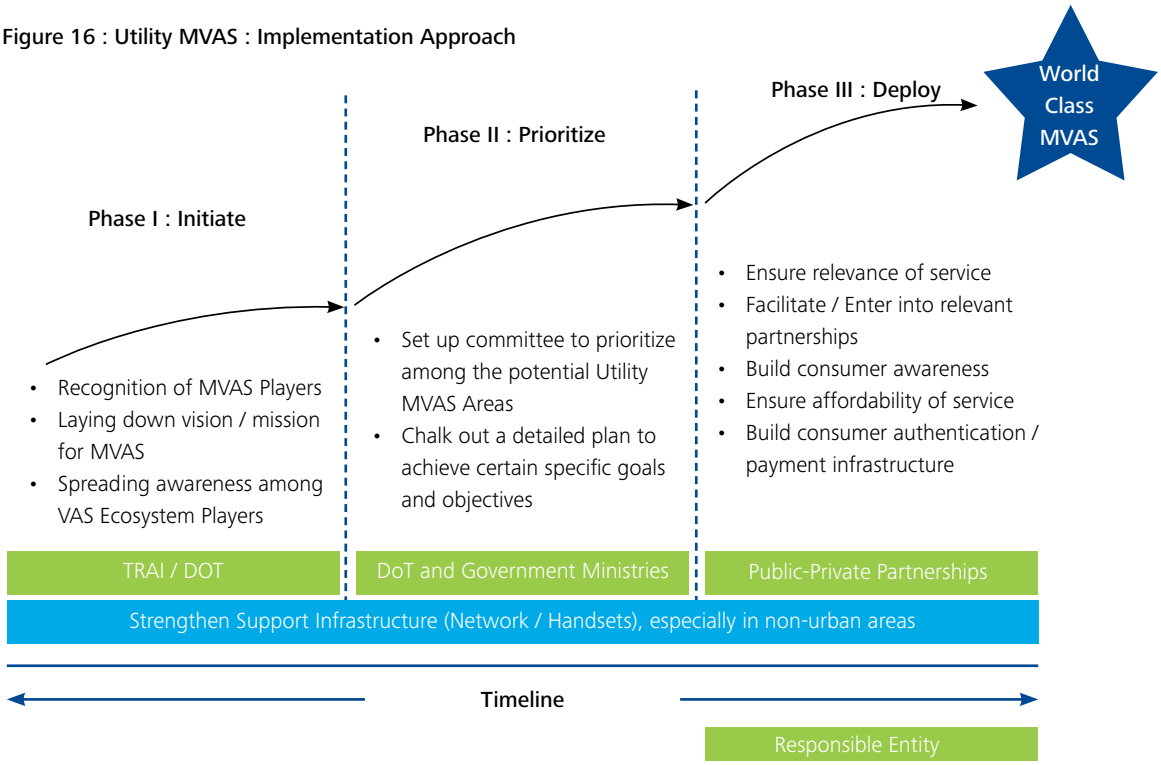


Utility MVAS: Suggested implementation approach

It is evident that the mobile phone, including applications supported by the mobile phone, can be a game changing way of improving access to many services. The power of the mobile phone as illustrated through multiple global case studies, and some successful examples in India, coupled with the high need for certain essential services in India make a compelling case for high involvement and investment by the government and private players to rapidly scale Utility MVAS in the country.

In the previous section, various challenges were discussed, as also some recommendations to address these challenges. Below a phase-wise approach has been suggested on how these recommendations can potentially be implemented:

Figure 16 : Utility MVAS : Implementation Approach



Initiate: The first step is the recognition of MVAS as part of the telecom industry. Currently only telecom operators are recognized by TRAI and licensed by DoT. The inclusion of MVAS providers is expected to benefit the industry by (i) providing mechanisms for dispute resolution (ii) improving ability to obtain investments, especially foreign investments (iii) ensuring greater accountability of the MVAS provider, including accountability for content (iv) ensuring greater cooperation between operators and MVAS providers (v) providing a platform for MVAS providers which enables them to build knowledge, foster innovation, and ensure greater participation in wider growth initiatives by the industry.

TRAI also needs to lay down a vision and mission, in order to provide a broad direction to the industry and instill a spirit of cooperative progress.

As part of fostering the ecosystem to ensure healthy participation by the VAS providers, TRAI (or a body such as COAI) also needs to raise the awareness of various ecosystem players, specifically operators around the need for a cohesive ecosystem. This can be achieved by means of an awareness campaign demonstrating successful global case studies across the world. This will help ensure that value is being equitably distributed across the chain.

Prioritize: In the second phase the government also needs to prioritize key areas of public welfare which need to be addressed by MVAS. This will greatly expedite the process of channelizing the industry's energies into Utility MVAS, and grow that market. Once priorities are set, the government will need to conduct a detailed planning exercise to (i) determine specific needs (for example, via an inter-ministerial panel) (ii) create application requirements to service these needs (iii) understand infrastructure and vendor requirements (iv) identify pilot areas to roll out initiative (v) identify timelines and project sponsor/ coordinator (e.g., DoT)

Deploy: Once prioritization happens, it is important to execute the identified initiatives appropriately. Some key considerations are (i) designing of the service in a manner to ensure services are relevant to the target audience based on a detailed consumer needs analysis (ii) identifying the right partners – application developers, operators, institutions etc. and facilitate the partnership between these (iii) educating consumers about the usefulness, and usage of the service (iv) assisting in price setting by ensuring the price is not more than the usual system cost incurred by the consumer, or is subsidized to the extent needed to ensure uptake of the service.

Strengthen Support Infrastructure: In terms of implementation, a critical need is ensuring the deployment of adequate network infrastructure across the country. In order for Utility MVAS to truly bring about inclusive growth this is critical. While this effort requires significant investment, there is already an effort to implement this by utilizing the USOF. This effort needs to be expedited.

As part of the deployment phase, there is also a need to set up a payments infrastructure for both banked and unbanked citizens. This is foreseen to have a tremendous impact on existing business models and the ability of MVAS providers to scale, and therefore offer a larger basket of services to a larger cross-section of the population. Similarly, setting up of an authentication mechanism would enable more complex, transaction based services on the mobile phone. While not critical for all business models to work, wider distribution of handsets in non-urban areas is also required for Utility MVAS to enable empowerment.

Funding Model

As described in Figure 16, the government has to take the first step, hence the funding for recognizing the MVAS players and spreading awareness among VAS ecosystem players needs to be borne by the Government through relevant bodies or departments viz. TRAI,DoT,etc. Once the government initiates and prioritizes the various initiatives, Public-Private-Partnership (PPP) could be an effective funding model for MVAS deployment - government bodies and private players can jointly fund the various key activities required, right from spreading consumer awareness to upgrading infrastructure to actual implementation of the initiatives. While the government could take up a more active role in infrastructure development, the private players could be involved in the actual implementation of the initiatives and the investments involved therein.

Thus, regulatory bodies such as the TRAI, and the Government, both at the Central and the State levels, can play a critical role in providing Utility MVAS impetus and momentum. Overarching bodies such as the TRAI are in a position to set the vision, broad direction and guidelines for MVAS in India, as well as, increase awareness around opportunities and critical success factors for Utility MVAS among telecom operators and other private players in the value chain.

The government, including the various relevant government departments can give further direction to the industry by examining competing development needs and prioritizing critical areas for potential Utility MVAS, setting aside funds for the various services and potentially playing an active role in the dissemination / facilitation of such services. The right cues from the Government and regulators is expected to facilitate the gradual maturity of the ecosystem to a sustainable, high equilibrium state resulting in a win-win situation for the consumers, private players, and the government.

Acknowledgements

During the course of writing the paper, we spoke to various people related to the industry in the public and private sector. Deloitte and ASSOCHAM would like to acknowledge them for their insights which form an integral part of the analysis presented in the paper. Some of our interviewees, both from government bodies, and private enterprises, have requested annonymity, and their names have not been disclosed in the list below. However, we are extremely grateful for their contribution and would like to thank them.

Name	Organization
Abhijit Saxena	Netcore
Amit Zaveri	EnableM
Anil Mathews	Imere
Anuj Poddar	Viacom 18
Arvind Rao	OnMobile
Ashima Gera	Idea Cellular
Atanu Dey	Netcore
Beram Gazdar	
Chima Okwundu	GloWorld SA
Debasis Chatterji	NetXcell
Divyesh Kharade	Deltecs InfoTech Private Limted
Dr Oliver Harrison	Abu Dhabi Health Authority
Dr. Abhinav Mathur	Spice Digital
Dr. Peter Benjamin	Cell-Life
Felix R Mbogella	IYFnet (BridgeIT Project)
Jasmeet Gandhi	Nokia India Private Limited
John Kattakayam	mChek
John Maynard	Vodafone UK
Koichi Takahara	Tata DoCoMo
Dr. Kodhandaraman Balasubramanian	Commonwealth of Learning
Kunal Lagwankar	Geodesic
Laura Hallam	Mxit
Manish Gupta	G-Cube Solutions
Dr. Peter Hudson	Healthagen
Hataguchi Masahiro	Mobile Computing Promotion Consortium (MCPC), Japan
Sato Masayuki	Mobile Computing Promotion Consortium (MCPC), Japan
Pranav Trivedi	AGC Networks

Name	Organization
Pushkar Chitale	Mauj
Rahul Gaitonde	Netcore
Rajesh Parmar	CanvasM Technologies
Ravindra Deshmukh	UPass
S.K.Gupta	TRAI
Sam Gulve	Spice Mobility
Samir Bangara	Indiagames
Sanjay Swamy	Unique Identification Authority of India
Sanjay Vijayakumar	MobME
Sashidhar Thothadri	Gemalto
Shabir Momin	Zenga
Dr. Subho Ray	Internet & Mobile Association of India
Sophia Salenius	Regpoint
Sunil Dutt	Hewlett Packard India
Sunil Kulkarni	Oxigen
Tanmoy Das	Tecnomic
Tim Kelly	World Bank
Trevor Smit	Net1
Trudy Van Wyk	Commonwealth of Learning
V V Ravindra	Idea Brahma Consulting
Vikas Jain	Micromax
Vinayak Deshpande	Maestros Mediline Systems

In addition, we would also like to thank the Deloitte global network, especially from Japan, South Africa, Singapore, China, Kenya, and the UK, who leveraged their extensive experience in the field of telecom, media, and technology and provided us with global perspectives.

Notes

Notes

Authors

Sachin Sondhi
Senior Director and Leader
Strategy & Operations Consulting
Mobile: +91 96195 98972
Email: sacsondhi@deloitte.com

Sandip Biswas
Director
Strategy & Operations Consulting
Mobile: +91 99300 09225
Email: sandipbiswas@deloitte.com

Gaurav Gupta
Director
Strategy & Operations Consulting
Mobile: +91 98113 07802
Email: gugaurav@deloitte.com

Prakash Bharwani
Senior Manager
Strategy & Operations Consulting
Mobile: +91 99308 85898
Email: pbharwani@deloitte.com

D. S. Rawat
Secretary General
ASSOCHAM
Tel.: 011-46550555
Email: d.s.rawat@assocham.com

Ajay Sharma
Director
ASSOCHAM
Tel: 011-46550555
Email: ajay.sharma@assocham.com

Contributions by:

Gunjan Gupta
Manager
Strategy & Operations Consulting

Rohit Lall
Consultant
Strategy & Operations Consulting

Shraddha Srimal
Senior Consultant
Strategy & Operations Consulting

Arnav Sawhny
Business Analyst
Strategy & Operations Consulting