



## Mobile Seva (m-Governance): A bridge between Govt. service delivery and the excluded communities of India

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### ABSTRACT

Mobile Seva (m-Governance) is an innovative initiative aimed at mainstreaming mobile governance in India. This is an extension to the vision of National e-Governance Plan making all government services accessible to the common man with efficiency, transparency and reliability at the affordable costs. Mobiles enable anytime, anywhere access to and delivery of services –bridging the last mile gap, no huge upfront investments and suited for rural areas. The present paper explores the various operational aspects of mobile seva and discusses that how the mobile seva is able to take the individuals into the approach of NeGP, who were previously digitally excluded.

*Keywords: m-Governance, e-Governance, NeGP, Digital Divide, Excluded Communities*

### Introduction

In the present era, society is experiencing a huge difference in the way of governance and going through a structural transformation. This process is multidimensional, but it is associated with the emergence of a new technological paradigm, based on information and communication technologies. In the past decade, the mobile communication technologies revolution and the growth of high-speed broadband and wireless access have begun to make a considerable impact on economic and social development worldwide, reinforced by the expansion of the public sector's capacity to leverage the use of Information and Communication Technologies (ICTs) to improve its internal functioning, as well as its interactions with citizens and businesses (ITU, 2011).<sup>1</sup>

Information has been the central theme in the 21<sup>st</sup> century. During this information age, the phenomenon is that the digital industry creates a knowledge-based society surrounded by a high-tech global economy. The e-governance lies very deeply in the information society, digital society and the network society. Among many scholars who have defined this informational transformation of the society, Manuel Castells' name is the most for most and unique in two aspects- 1. He is the prolific theorist on the subject of information age and

2. He has developed critical view point towards networking society.

Castells (2000)<sup>10</sup> has characterised this emerging society as information society or knowledge society. He claims that networks throughout history had a major advantage and a major problem vis-a-vis other forms of social organization. According to Castells, power now rests in networks. Networks exist within and between businesses, where the organizational unit has shifted from being capability-oriented (e.g. accounting, human resources, etc.) to being project-oriented. He says that information has been an essential component of all societies, whether capitalist or not. In the new "network economy", information becomes a key factor in economic productivity. Today, for example, the flow of capital into currencies, commodities, and stocks is based upon access to information about relevant topics, from international politics to climate change, weather predictions, and social trends. In that sense, the importance of information in contemporary society is not new. What is new, he claims, is the *informational* shift to the manipulation of information itself: the "action of knowledge upon knowledge itself" (Castells, 2000)<sup>9</sup> is now the basis to increased productivity.

ICTs hold great promise in derive for development and poverty reduction in global south. In many instances, poor people have experienced benefits in the form of increased income; better health care; improved education and training; access to job opportunities;<sup>3,8,15,20</sup> engagement with government services; contacts with family and friends; enterprise development opportunities; increased agricultural productivity.<sup>6,12</sup>

So, it can be said that the importance of a strong network for the growth of economy is very important and it is also very important to connect each and every unit of the society to this network. There is no doubt that ICTs has a great contribution in strengthening the network but we cannot forget to mention the digitally deprived section which has the less chance for their inclusion to the network. Hence, it becomes very

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important to enhance the reach of the government to the digitally deprived sections for the better governance.

### Information Poverty and Digital Divide

The explosive development of ICT, its applications, and the emergence of a global information society are changing the way people live, learn, work and interact. Enhanced access to knowledge is rapidly becoming a potent tool for empowering the people and communities in their quest for new opportunities, dignity and a better life (ITU, 2011).<sup>1</sup> The use of digital technologies in the world has not only improved people's day-to-day life but it has also divided the world into information rich and information poor, i.e. the information haves and have-nots. Limited access to information is identified as the root cause of the failure of the all developmental programmes. According to UNDP, 2011, with an average of the 60% beneficiaries completely unaware of their entitlements, 'Information poverty' is a wide development and governance challenge. The divide between technology's haves and have-nots threatens to exacerbate the gaps between the rich and poor, within and among countries. Unfortunately, in India all people have not access to the Internet and ICT, and a large number of rural people does not have abilities to use the ICTs in a proper way and, therefore cannot draw the advantages from its usage. The issues of "digital divide is posing a herculean task before the Government of India to provide the maximum benefits to the stake holders (Singh, 2009).<sup>21</sup>

Thus, the unequal access to information and communication technologies has led to a massive divide digitally. Digital divide refers to the gap between those with regular, effective access to digital and information technology, and those without this access. It encompasses both physical access to technology hardware and, more broadly, skills and resources which allow for its use. Factors like gender, physical disability, physical access, age, access to the contents, and lack of ICT skills contribute to the digital divide.<sup>14</sup> Although India has been one of the emerging super powers in IT, the benefits have been remarkably slow, particularly in rural and remote areas. Besides socio-economic factors, geographic, educational and attitudinal factors have been some of the challenges for the government when introducing IT-oriented programs.<sup>13</sup> As far as India is concerned low literacy rate, poor education system and the language differences are the responsible factors that can be considered to the digital divide.<sup>14</sup> At national level, there is no single divide, but multiple divides: for instance; within countries, between men and women, young and elderly, rich and poor and most importantly rural and urban. Thus digital divide can be defined as economic, social or cultural deprivation generated by missing ICT access and skills.

The ability of reaching rural areas is an important feature of m-governance. Mobile phones can reach areas where the infrastructure necessary for Internet services or wired phone services is difficult to set up. Mobile phones are a relatively low cost technology as compared to Internet technology and are more affordable.

By creating new and expanded communication channels, mobile technologies provide access in areas where the infrastructure required for Internet or wired phone service is not a viable option. The development of mobile communication technologies has not only created a new venue for governments to reach out to a much greater number of people than ever, but it has also brought citizens previously

unimaginable opportunities to communicate with each other conveniently, and to access both public and private information and services, with diminishing time and space boundaries and limits. Cheap and ready-for-use mobile devices are removing existing barriers and are empowering citizens to connect to governments to access a wide range of information and services in a number of policy areas, e.g. legal information, health, education, finance, employment, transportation and public safety. Furthermore, new generation mobile phones, or "smart phones", and the realization of 3G and 4G networks with new built-in functions and a plethora of mobile applications, are providing unprecedented possibilities in terms of communication, networking and interactive experiences to actors across the globe (ITU, 2011).<sup>1</sup>

### Role of m-Governance

The limited reach of e-Governance has made government think of new technologies, such as mobile phones, to reach the citizens and deliver public service (Kumar et al. 2011)<sup>17</sup>. However, the level of access to fixed broadband, particularly in developing countries, is lower than the access to mobile technology. This is due, in great part, to the high cost of the broadband technology and required infrastructure, in comparison to the cost effectiveness and impact of mobile technology on citizens' lives and on their interaction with governments (ITU, 2011).<sup>1</sup>

Mobile governance (m-governance) aims to leverage wireless and new media technology platforms, mobile devices and applications for delivery of public information and services to all citizens and businesses. It aims at widening the reach of, and access to, public services to all citizens in the country, especially in the rural areas by exploiting the much greater penetration of mobile phones in the country (www.deity.gov.in). It can be expected to provide governments with significant opportunities to achieve greater cost optimisation, improved communication, and data exchange, expanded service delivery and stronger digital equality. With mobile technologies, information and actions can be co-ordinated in any location and among agencies, improving collaboration and co-ordination between public authorities across levels of government; this is particularly critical in emergency response and crisis management. Furthermore, mobile phone penetration extends outreach and access to groups which are often difficult to reach, e.g. citizens in rural areas, and expands governments' accountability and transparency to a higher number of citizens (ITU, 2011).<sup>1</sup>

According to the Statistical Yearbook for Asia and the Pacific (2014)<sup>22</sup>, the progress in information and communication technologies (ICT) has been mainly led by mobile telephony, and less in terms of Internet connectivity. Mobile-cellular subscriptions per 100 population in Asia-Pacific grew rapidly from 15.6 in 2003 to 88.8 in 2013. However, the annual growth rate has been steadily falling from 29.4% in 2003 to 5.0% in 2013. Asia and the Pacific is one of the most digitally divided regions in the world, mainly due to the high cost of international bandwidth in some parts of the region. As evidence of this, the growth in Internet users was much less impressive than the growth in mobile-cellular subscriptions over the last decade. Nevertheless, the number of Internet users in the Asia-Pacific region has grown from 6.8 in 2003 to 32.4 per 100 populations in 2013. The annual growth rate of Internet users slipped to 8.0% in 2013, the first single-digit growth rate in the last decade. The highest Internet-use rate was recorded in the Pacific (64.3) and North and Central

Asia (53.4), with the lowest in South and South-West Asia (15.8).

India has the most growth in term of mobile users. According to the TRAI press release (January, 2015),<sup>24</sup> there are 937.06 million are the mobile users which is the 70% of the total population of India. The monthly net addition is 1.71 million (0.18%). The figures from the rural India are also very encouraging where number of mobile users is reached to 390.06 million with the monthly net addition 3.49 million (0.90%). Looking at the mounting figure of mobile subscribers, it has become essential to offer government services over mobile-phones. Through the mobile governance, the government of India wants to utilize the massive reach of mobile phones and harness the potential of mobile applications to enable easy and round the clock access to public services, especially in the rural areas. The framework aims to create unique infrastructure as well as application development ecosystem for m-Governance in the country (The Gazette of India, 2012).<sup>23</sup>

M-Government is part of a broader phenomenon of mobile-enabled development or leveraging the mobile revolution to enable development impact. It takes electronic services and makes them available via mobile technologies using devices such as mobile phones. These services bypass the need for traditional physical networks for communications and collaboration. It is a sub-domain of e-governance which was started with the framework for mobile governance, notified in the Gazette of India, February 2012 as an extension of the NeGP vision, and in cognizance of the vast mobile phone subscriber base in the country, the Government of India has decided to also provision for access of public services through mobile devices, there by establishing mobile governance (m-Governance) as a new paradigm within the ethos of e-Governance (The Gazette of India, 2012).<sup>23</sup>

### NeGP extension with Mobile Seva

Mobiles can become the most common access devices for government services provided through the national e-Governance exchange middleware comprising National e-Governance Services Delivery Gateway (NSDG), State e-Governance Services Delivery Gateway (SSDG) and various domain gateways, e.g. Passport Gateway, MCA21 Gateway, etc. The current architecture of NSDG/SSDG or the domain gateways should be supplemented with a framework for mobile governance (mgov.gov.in).

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A separate infrastructure for Mobile Seva is required as:

- Seamless integration with backend department needs to be ensured through existing NSDG/SSDG e-Gov exchange infrastructure.
- Common interface needs to be provided for various mobile based services, e.g., Short Message Service (SMS), USSD (Unstructured Supplementary Service Data), IVRS (Interactive

Voice Response System), CBS (Cell Broadcasting Service), LBS (Location Based Services), mobile applications, etc.

There is a need to generate as well as render the contents for delivering services on the mobile platform as mobile devices present a constrained environment.

Considering this huge penetration of mobile phones in the country especially in the rural areas, it has become imperative to offer government services over mobile-devices to ensure that the vision of the National e-Governance Plan (NeGP) to provide government services to citizens near their doorsteps becomes a reality. Mobile Seva is an innovative initiative aimed at mainstreaming mobile governance in the country. It provides an integrated whole-of-government platform for all Government departments and agencies in the country for delivery of public services to citizens and businesses over mobile devices using SMS, USSD, IVRS, CBS, LBS, and mobile applications installed on mobile phones.

### What is Mobile Seva?

'Mobile Seva', a nationwide initiative conceptualized, funded and implemented by the Department of Electronics and Information Technology (DEIT), is among the second place winners of the 2014 UN Public Service Awards, along with Bahrain, Brazil, Cameroon, Republic of Korea and Spain (www.indianexpress.com 2014).<sup>16</sup> The vision of Mobile Seva is to mainstream mobile governance in India as a new paradigm for e-delivery of public services through mobile devices. It leverages the massive penetration of mobile phones in India to substantially enhance access to electronic services, especially in the rural areas. It benefits the poor, illiterate, disabled, elderly, and the women in accessing e-governance services as access to mobile phones segments of the population as compared to access to the internet.

The mobile governance policy framework (MGPF) aims for "providing public services to all the residents in the country, especially in the rural areas, by utilizing the reach of mobile phones and the innovative potential of mobile applications, and making India a world leader in harnessing the potential of mobile governance for inclusive development".

Mobile telephony is an area in which the private sector has already created a massive infrastructure with a very large user base. There have been thousands of applications and value-added services running live from telecom companies, including applications and services pertaining to governance.

The Department of Information Technology (2014) has come up with a consultation paper on a mobile governance policy framework and has opened stakeholders' discussions on the framework for citizen engagement in the national e-governance plan (NeGP). In which it is shown that India has already reached 55% teledensity—143% in urban areas and about 33% in rural areas. In another couple of years, every adult is expected to have a mobile phone, and this is going to throw a serious challenge to various aspects of governance.

Mobile Seva aims to provide government services to the people through mobile phones and tablets. It has been developed as the core infrastructure for enabling the availability of public services through mobile devices. Mobile Seva enables the integration of the mobile platform with the common e-Governance infrastructure consisting of State Data Centers (SDCs), State Wide Area Networks (SWANs), State and National Service Delivery Gateways (SSDGs/NSDG). It enables a government department to integrate both web and mobile based services seamlessly and enhances the access to



electronic services tremendously leveraging the very high penetration of mobile phones, especially in rural areas. Availability of government wide shared infrastructure and services enables rapid development and reduced costs for the departments in rolling out mobile based services (Press Information Bureau, Ministry of Information and communication technology, 2014).<sup>16</sup>

## Features of Mobile Seva

### Mobile Service Delivery Gateways (MSDG)

The MSDG enables delivery of public services over mobile devices through various mobile based channels, such as SMS, USSD, IVRS and mobile applications. As MSDG has been developed based on IIP/IIS (Interoperability Interface Protocol / Interoperability Interface Specifications) standards of Government of India, it provides seamless integration with the backend departments through existing NSDG/SSDG e-Governance infrastructure. Backend departments are connected to the MSDG for mobile based services.

### SMS Gateway

The SMS Gateway provides the common service of SMS to the e-Governance exchange and is used to deliver SMS based services to all citizens and businesses. It supports both push and pull based services. Using push services, common informational services can be pushed to citizens as a group. Departments can use the SMS Portal or a programmatic interface to push SMSs to citizens. Citizens can also request for specific information through pull based SMS services. Short codes 51969 and 166 have been allotted by Government of India for mobile governance services in the country. These short codes have already been made operational for pull services. In addition, a long code, 9223166166, has also been made operational for pull services.

### USSD

Unstructured Supplementary Service Data (USSD) is a session based service unlike SMS, which is a store and forward service. USSD can be used by the user to send command to an application in text format. USSD acts as a trigger for the application. Currently this service is mainly being used for checking balance in financial accounts and mobile prepaid recharge. A three digit short code \*166# has been allotted to Mobile Seva for this service. USSD is more interactive as compared to SMS but nothing is stored on the phone. This can be very useful for submitting requests for a service through an interactive menu and for tracking their status. Till the date, approximately 6782 transactions are being done through USSD Services.

### IVRS (Interactive Voice Response System)

IVRS is an example of a computer-telephone integration (CTI). The most common way for a phone to communicate with a computer is through the tones generated by each key on the telephone keypad. These are known as dual-tone multi-frequency (DTMF) signals. A computer needs special hardware called a telephony board or telephony card to understand the DTMF signals produced by a phone. A simple IVR system only requires a computer hooked up to a phone line through a telephony board and some IVR software. The IVR software allows pre-recording of greetings and menu options that a caller can select using his telephone keypad. More advanced IVR systems include speech-recognition software that allows a caller to communicate with a computer using simple voice commands. Speech recognition software has become sophisticated enough to understand names and

long strings of numbers. In the context of mobile governance, the IVRS application is intended to serve the C2G and G2C services within the e-governance domain. Through IVRS based services, status enquiries for a large number of services can be automated and the requisite information provided to the service seekers without causing undue overheads on the e-governance infrastructure. Approximately 379931 transactions are being done using IVRS Services.

### Location Based Services (LBS)

Location Based Services (LBS) can be very useful for the departments for customizing their services according to the location of the service seeker. There are various ways in which location of the service seeker can be determined. Most popular are GPS and cell tower based locations. GPS based location is more accurate compared to cell tower based location. MSDG will connect to such systems and will provide a unified interface to departments or developers of mobile applications, which can be used by them for customizing or developing the applications.

### Cell Broadcasting Services (CBS)

Cell Broadcasting Services (CBS) are particularly relevant when certain notifications or alerts have to be sent to citizens in a particular area. This can be very helpful in case of disaster or emergency situations. MSDG will connect to all the telecom operators for CBS for this service and will provide a unified interface to the departments. Departments can then use this unified interface for notifications and alerts in a particular area.

### Mobile Payment Service

Many transactional government services involve some amount of payments to be made by the service seekers to the Government departments. A Mobile Payment Gateway has been developed incorporating various channels for making electronic payments through mobile devices. These include credit/debit/cash/prepaid cards, SMS based payments through Mobile Money Identifier (MMID), mobile wallets, net banking, etc. The Mobile Payment Gateway has been made available to Government departments and agencies for integration with their applications. Citizens can use this facility to make payments for various government services through their mobile devices.

As on date (April, 2015), 1,687 Central and State Govt. Departments and agencies are using Mobile Seva for providing SMS-based services, and 3,38,88,90,510 SMSes have been pushed so far by integrating departments for various mobile based services. Citizens can now directly interact with Government Departments through SMS. As on date, 406 public services are available to the citizens. A Mobile Applications Store (m-App Store) has also been developed by DeitY as part of Mobile Seva. The m-Appstore currently hosts over 458 live mobile applications. The live applications can be downloaded and installed free of cost on a mobile phone by any person.

## Roadmap of m-Governance

Today, The speedy diffusion of mobile ICT such as laptops, mobile phones, PDAs (Personal Digital Assistants), along with emails, instant messaging and other networking services have rapidly fuelled the mobilization of interaction. Our society is increasingly getting mobile, and people want everything available on their handsets. So with the increasing numbers of mobiles, the all web portals of the government official websites must be more mobile friendly and the mobile apps

which provides. In the present time m,-governance is executed only on the Government to Citizen level (G2C), while it should be promoted on other levels of governance like Government to Government (G2G) and Government to Business (G2B) also. In future, instead of being informational, the m-governance needs to be more interactional, transactional and transformational at the all level of governance. Only then we can think about the one step ahead of the governance which is Ubiquitous governance, intelligent services providing users with real-time access to desired information, from anywhere and at any time.

## Conclusion

In conclusion, the rapid uptake of mobile technologies in remote locations of low-income group communities – together with the emergence of many innovative mobile applications and services, has increased the potential for ICTs to play a positive role in supporting and establishing good governance.<sup>19</sup> In upcoming time, governments worldwide will be challenged by the need to look into developing m-government by adopting strategies that will enable them to harness the opportunities offered by mobile technologies and maximise their benefits in order to provide better governance to the excluded societies.

By strengthening the information system, m-government is improving the quality of life of many individuals who were previously digitally excluded. Specifically, mobile technologies facilitate convenient access to public information and services. Citizens in remote areas can, for example, receive improved m-health assistance, notifications and emergency medical alerts. Mobile technologies also facilitate financial transactions (e.g. process cash transfers, deposits and withdrawals, payroll credits, international remittances and similar banking activities) and allow the delivery of educational content to students who would normally have limited access to public education.

Despite all its promise though, m-government in India is still in its very early stages and needs more research to improve the effectiveness of m-services development and to attain wide public acceptance and there are still limits in the capacity of m-government to reach out to certain segments of the population, and in order to not widen the digital gap, governments should avoid enforcing the use of mobile channels, and provide access to new technologies only to those who are willing to use them.

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