MOBILE ENABLED GOVERNANCE FOR LOCAL GOVERNMENTS IN INDIA

Snehal C. Sapkale

AAI, Centre for Development of Advanced Computing [C-DAC],
5th Floor, Westend Centre-III, S.No. - 169/1, Sector II,
Aundh, Pune - 411007, Maharashtra, India
snehals@cdac.in

Rachana Kulkarni-Bhende

AAI, Centre for Development of Advanced Computing [C-DAC],
5th Floor, Westend Centre-III, S.No. - 169/1, Sector II,
Aundh, Pune - 411007, Maharashtra, India
rachanak@cdac.in

Abstract

India is heading towards globalization. Its economy is growing faster than the most of any major economy in the world. The Ministry of Statistics and Programme Implementation expects the Indian economy to grow by 7.4 percent during the course of the year. Also Indian cities are going to be the fastest growing cities in Asia over the next five years. This rapid growth in cities isn't without its problems. This city encroachment leads to problems regarding public safety, quality of life, environmental issues, Health issues etc. And same is the case for many other cities in developing country like India. Nowadays "city re-enhancement" is a national/ major concern in India. Also National e-Governance Plan (NeGP) has been formulated by the Department of Electronics and Information Technology (DeitY) and Department of Administrative Reforms and Public Grievances (DARPG). Plan of the Government of India is to make all government services available to the citizens of India via electronic media. Indian Municipal Corporations/ local governments play a vital role in socio-economic growth of cities. As cities are in their continuous growing stage, it becomes difficult for local governments to meet accountability to problems they govern and be in constant communication with citizens. Mobile Communication Technology (MCT) and M-governance (e-governance through mobile) has enormous potential for city re-enhancement. M-governance is fast becoming the preferred mode of availing services by the citizens. MCT is seen as constituting great potential for development in developing countries which cannot be ignored. It is proved, that India needs to use MCT & M-governance in order to promote development. This paper attempts to explore the needs, possibilities, potential & problems of Mobile Communication Technology enabled M-governance by local government bodies in India.

Keywords: E- Governance; M-governance; Local Government; Municipal Corporation; Mobile; MCT

1. Introduction

"Governance" means: the process of making decision and the process by which these decisions are implemented (or not implemented). "Good Governance" is not about always making 'correct' decisions, but bringing the best possible process for making those decisions. Good governance not only gives the citizens confidence, but also improves the faith in government and in their decision- making processes. Good governance leads to better decisions, better relationships and better government. Some of the characteristics of Good Governance are:

- Transparency
- Responsibility
- Accountability
- Participation

- Responsiveness (to the needs of the people)
- Effective

Since India is a developing country, Good governance is a must for its fast development. This can be achieved by involving citizens, ICT i.e. E-Governance and mobile/ wireless technologies i.e. M-Governance in governments decision making processes.

E-Governance is the process to provide quality of information and services which are provided to citizens, businesses, civil society organizations, and other government agencies in an efficient, cost effective and convenient manner. This makes government's processes more transparent and accountable. E-Governance strengthens the democracy through the use of tools of information and communication technology (ICT), WAN, Internet and mobile computing. E-Governance envisaged by Dr. APJ Abdul Kalam in the Indian context is: "A transparent smart e-Governance with seamless access, secure and authentic flow of information crossing the interdepartmental barrier and providing a fair and unbiased service to the citizen." We can differentiate E-Governance services in following types:

- G2C – Transaction between government and citizens
- G2E - Transaction between government and Employee
- G2B - Transaction between government and business
- G2G - Transaction between Central/National and local governments and between government departments/agencies.

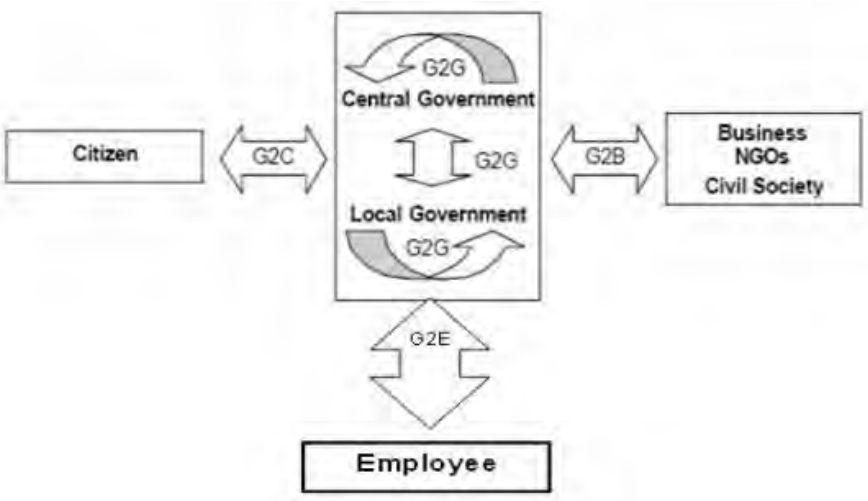

Figure 1

M-Governance is not a replacement for e-Governance; rather it complements e-Governance. M-Governance, on the other hand, makes use of mobile or wireless technologies to help make information and government services publicly available "anytime, anywhere" to citizens and officials. The aim is to address the society's needs and expectations through efficient public services and effective interaction between the people, businesses and government.

2. Governance in India

India is a developing country with huge potential for a fast development. India is developing in all spheres of Life. Its economy is growing faster than the most of any major economy in the world. The Community Empowerment is pivotal for the development of the country like India. Most necessary thing now is to bring people in community in the mainstream of the digital technologies for greater social transformation. Governance in India is mostly paper based. Use of digital technologies is restricted to ICT only. That too mostly for displaying information publicly. It is essential for developing country like India to invest in infrastructure and training of wireless and ICT technologies and services to serve its development goals. Major concerns in India

regarding governance are corruption, lack of transparency and accountability. Using these digital technologies through E-governance & M-governance makes it easier for government to provide information within time bound frame. It helps to reduce corruption and to create better transparency and accountability through citizen engagement in government's decision-making process. This would also reduce the need for printed paper; this contributes to a greener planet and a balanced ecosystem.

E-Governance in India should also expand its horizons in the form of M-Governance which is fast becoming the preferred mode of availing services by citizens. The increasing use of mobiles by different age groups is seen as having an impact on all spheres of life. The mobile technology has provided a robust platform for development and growth of the society and proven to be very effective. India's Hon'able Prime Minister too has asked the country's IT experts to explore ways to provide as many services as possible through mobile phones to boost M-Governance. The Prime Minister noted that e-Governance is an essential part of his ambitious 'Digital India' project and underlined that the scale and speed of India's development journey requires maximum and smart utilization of latest technologies.

3. Local governments in India

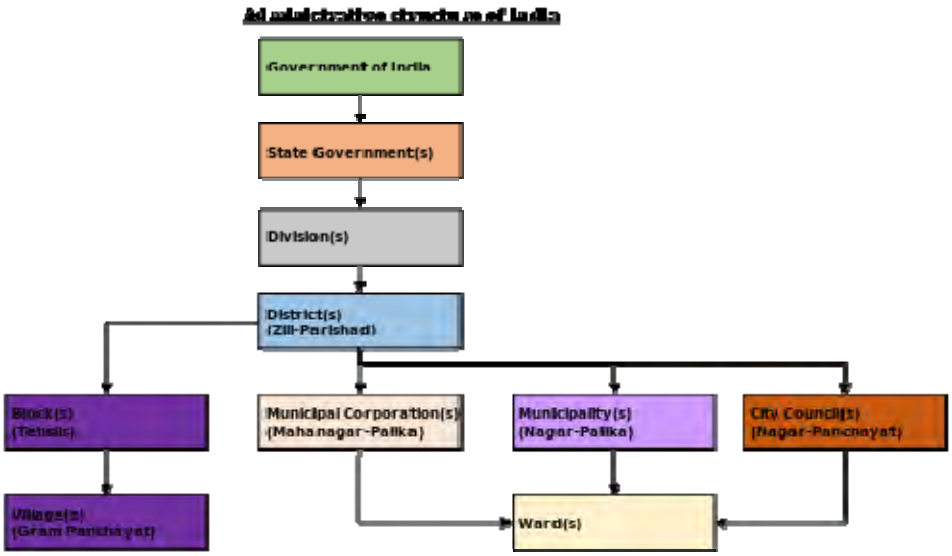

Figure 2

In Indian context, the municipal bodies are urban local government that works for the development of a Metropolitan City, which has a population of more than one million. The growing population and urbanization in various cities of India were in need of a local governing body that can work for providing necessary community services like health care, educational institution, housing, transport etc. by collecting property tax and fixed grant from the State Government. Each Municipal Corporation has a committee consisting of a Mayor with Councilors. Municipal Corporation consists of various members for different departments elected from different wards of the city. Municipal Commissioner can be regarded as the CEO of Municipal Corporation. Commissioner has all the executive powers. He/she is responsible to lie down and execute the policies and also the local city governance.

Municipal bodies' functions broadly relate to public health, welfare, regulatory functions, public safety, public infrastructure works, and development activities. In turn this Public health includes Water supply, Sewerage and Sanitation, eradication of communicable diseases etc.; welfare includes public facilities such as Education, recreation, etc.; regulatory functions related to prescribing and enforcing Building regulations, encroachments on public land, Birth registration and Death certificate, etc.; public safety includes Fire protection, Street lighting, etc.; public works measures such as construction and maintenance of inner city roads, etc.; and development functions related to Town planning and development of commercial markets; and on an agency basis, various functions such as Family planning, Nutrition and slum improvement, disease and Epidemic control, etc.

4. M-governance in Local governments

Most of the work done by Municipal bodies is manual and involves paper work. Current local governance involves citizen's or employees personal visits in government offices, which can be more time consuming. Since nowadays society is also moving towards increasing number of mobile connections, local governments should make use of this. Local governments now must make their services accessible to citizens irrespective of location "anytime, anywhere". This would bring potentially biggest benefit to citizens and local government. M-governance has potential to bridge the gap between government and citizens through the use of technology. If we implement M-governance to carry out local government's long list of functions using mobile technology, it would help to serve citizens better, smoothly and effectively and would restrict governments to provide time bound services. Local governments must make use of Android/ iOS/ windows based mobile applications, mobile technologies such as SMS and voice based features, video calling, GPS & location services etc.

5. Methodology

M-governance is using the mobile and wireless technology to enhance delivery and access of government information and services to the public with effectiveness, efficiency and quality.

An effective government service is a result of a clear vision, mission and strategy of service delivery in all parts of the country. The success of any government service depends upon its leadership and sound use of Technology. The success of an e-Government strategy depends on sound leadership in the Information and Communication Technology (ICT). Implementation of mobile and wireless technologies will facilitate easy access to government information and services and promotes efficiency, accountability and transparency in the rendering of those services. In rapidly developing India, there is a striking contrast between the high tech and world class IT Corporations and its low-tech Government organizations serving the public. Filling the gap in work cultures between these two is much needed and is feasible.

For implementing M-Governance, methodologies for different parties like citizens, businesses and governments should be taken into consideration. The most important points to consider here are Indian network framework and services particular for citizens. For implementing M-Governance using Mobile Communication and wireless technologies, survey to choose local government to implement M-governance needs to be conducted. This survey should include information regarding requirements of local citizens, government's current infrastructure and departments.

According to research and study conducted, several issues identified for broad implementation of m-Government services in India.

(1) ***Infrastructure development*:** 40% to 50% of success of m-government services depends upon the IT infrastructure and processes used for its implementation. For m-government success in India, physical IT infrastructure such as networking, setting up systems for processing information and delivering services, mobile connectivity, technology, equipments, ICT tools, department wise arrangements etc. everything should be at satisfactory level.

(2) ***Compatibility and interoperability:*** It will still take many years in India for 100% implementation of m-governance. For now, for its greater success, m-government services must be compatible with the existing e-government systems. M-government services must seamlessly integrate with e-government services without any technical difficulties. For this government may need to rebuild and optimize their business processes.

(3) ***Privacy, Security and Mobile Payments infrastructures:*** Citizen's trust on M-government's services is essential for M-government's success. A very first hurdle for consumers to have participation in online transactions is a feeling of mistrust in sending their credit card information over the mobile phone or the Internet. Also citizens also have concerns that their privacy on opinions and inquiries to the government are protected and their personal information is not shared with third parties. The government must overcome the mistrust, must establish the information security system, secure online transactions and assure mobile users that people's privacy is protected.

(4) ***User friendly:*** The success of M-Governance depends largely upon the number of its users. To increase citizen participation and provide citizen-oriented services, easy m-government applications and easy access to these applications must be offered. Possibly these applications must include video and audio communications.

(5) ***Legal issues:*** M-Government relevant laws, regulations and standards must be adopted in case of mobile crimes. E.g. Laws of Fair Mobile Information Practices which includes accepting information in the form of mobile documents and transactions.

In deploying applications, government should ensure that citizens get exactly what the application claims to be. If application contains a channel to receive complaints, government should be sure to regularly get back to the complainants, about the status of their complaint until it is resolved. Government should also ensure that there is suitable back-office system in place to deliver on m-Government promises.

6. Discussions

In the 21st century, mobility has become one of the most important technology and communication standard affecting all facets of modern life including mobile information systems, mobile payments, mobile commerce, mobile television and mobile government.

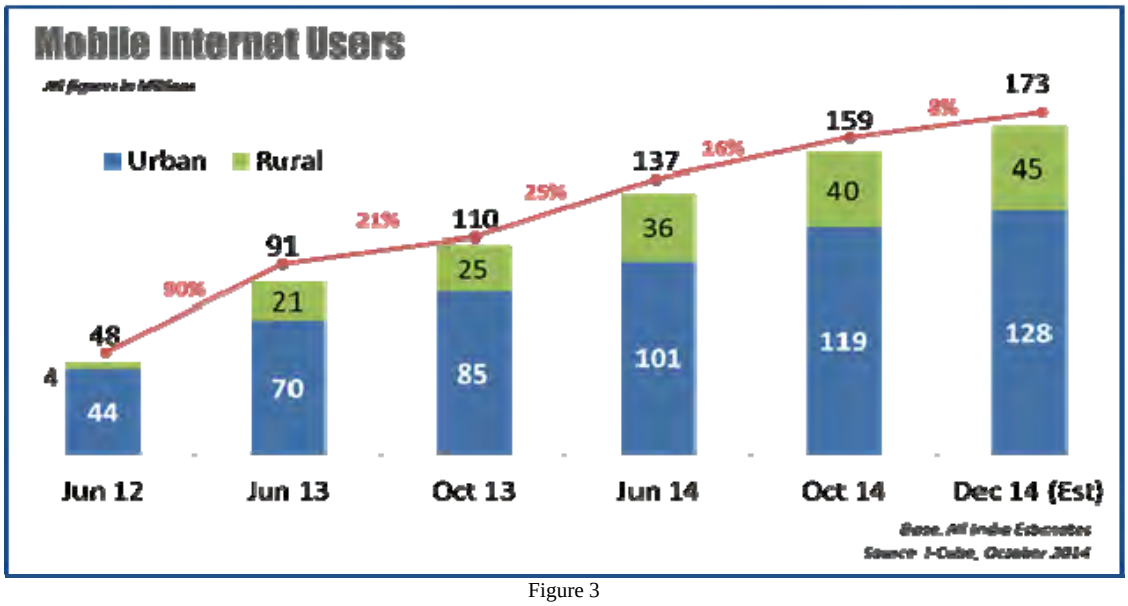

Figure 3

According to the Figure 3, around 173 million or 57 percent of Indian internet user access internet from their mobile phones. The percent of mobile internet users has grown more rapidly than traditional broadband users. 49 million new mobile internet users have been added between Oct 2013 to Oct 2014.

RANKING OF COUNTRY BASED MOBILE PHONE USERS IN 2004-05

Rank	Countries	No Of Users	Date
# 1	China	393,428,000	2005
# 2	United States	201,650,000	2005
# 3	Russia	120,000,000	2005
# 4	Japan:	94,745,000	2005
# 5	India	90,000,000	2005
# 6	Brazil	86,210,000	2005
# 7	Germany	79,200,000	2005
# 8	Italy	72,200,000	2005
# 9	United Kingdom	65,500,000	2005
# 10	France	48,058,400	2005
# 11	Mexico:	47,462,110	2005
# 12	Indonesia	46,909,970	2005
# 13	Turkey	43,608,960	2005
# 14	Spain	41,327,910	2005
# 15	Korea, South	38,342,320	2005
# 16	Philippines	34,779,000	2005
# 17	South Africa	33,959,960	2005
# 18	Poland	29,166,390	2005
# 19	Thailand	27,378,660	2004
# 20	Argentina	22,100,000	2005

Figure 4

Ranking Of country based on Mobile Phone Users In 2013

Ranking	Country Name	Number of Mobile Phone Users
1	China	859000000
2	India	752000000
3	United States	279000000
4	Russia	238000000
5	Indonesia	220000000
6	Brazil	202944000
7	Vietnam	154000000
8	Japan	121000000
9	Pakistan	111000000
10	Germany	105000000

Figure 5

By Comparing Figure 4 and Figure 5, it shows that the no. of mobile phone users increasing day by day. In 2005 India was in 5th position with 90 million, but in 2013 India is in 2nd position with 752 million Mobile phone users. The cost of mobile phone is much cheaper than a computer with internet connection and the learning how to use a mobile phone is also much simpler. Government should make use of Internet ready mobile phones, smart phones and personal digital assistants (PDAs), their features like android OS, GPS, and location based services and should open a new channel to provide fast and timely information accessible anytime, anywhere.

7. Benefits

This paper has thrown some lights on the possible benefits of m-governance. Following are the benefits of implementation of m-governance.

Figure 6

(1) ***M-Governance benefits to Government:*** M-Governance makes positive impacts on management of internal processes like following:

(i) Law and Policy making

(ii) Regulation and

(iii) Provision of services to constituents

(iv) Efficiency of administration

M-Governance is in turn beneficial for government's better Image, Control of Corruption, for cost cutting like (Manpower, Accounting, Compilation, reporting and Review).

(2) ***M-Governance benefits to Citizen:*** M-Governance makes promises of providing efficient and convenient services to citizens, which includes following benefits:

(i) Increases transparency and hence reduces corruption,

(ii) Easy access to information of government agencies and programs

(iii) Reduces complexity of visiting multiple government agencies and websites.

(iv) It enhances quality of life in areas such as health, education, employment etc.

(v) Promotes spirit of liberty among people

(3) ***M-Governance benefits to ICT:*** The biggest beneficiary of m-Governance would be ICT industry. Benefits are in various segments such as, software, hardware, networking, security and IT-education. But the most important benefit for the ICT industry is partnership with government in implementing m-Governance through a cost effective and sustainable business model. Some of the key problems cited by those who used ICT regulatory were technical problems, virus, slow Speed and disconnection, and lack of Web developers to update Web pages.

8. Challenges

Although m-governance has got its own benefits such as lower costs, real-time monitoring, effective adaptability, greater accessibility, yet there are some important challenges:

(1) ***Cost:*** As of now, M-governance is not a complete substitution for E-governance. For complete substitution it will still take some years. So at this stage M-governance systems are likely to be cost-addition initiatives.

(2) ***Not meant for all:*** Poorer groups in society tend to be excluded from M-governance. So a most important challenge to M-governance is to ensure if all the strata of society is included in the process.

(3) ***Trust/security:*** If m-government encompasses public service applications which include transactions or m-payment systems, then it must have good security and must be trustworthy.

(4) ***Mobile mindsets:*** Mobile phones particularly are seen as tools more for fun and entertainment by many than for serious activities. Since m-governance is a serious activity, chances of playing pranks by the anonymity from mobile devices (which are often unregistered) cannot be neglected.

(5) ***Data overload:*** Some M-governance applications may require users to be connected to internet permanently or "always on". Out of these permanent connections, some can be valuable and some not. These kinds of connections may create a blizzard of communications.

(6) ***Localization:*** Since India is a country with diversified culture, localization is also an important challenge.

9. M-Governance projects implemented in other countries

Realizing the benefits of mobile and wireless technologies, adopting these technologies for governance in developing countries is very important. Many other countries are now embracing these technologies and are developing solutions for better delivery of government services to public. Following are few examples of m-Governance projects implemented in other countries:

(1) ***Turkey:*** One of the major applications of m-Government in Turkey is Mobese (Mobile Electronic System Integration). This application is a G2G mobile government application for law enforcement units which aim to maximize the efficiency and effectiveness of the law enforcement units. Mobese connects the law enforcement units to their respective police stations via a GPRS, allowing law enforcement units to query citizens regarding validation of their identity, checking their record history.

Another major mobile government application in Turkey which is used country wide is TBS (Trafik Bilgi Sistemi – Traffic Information System). It connects mobile traffic units to a central information system via GPRS. The mobile units can ask real time queries regarding drivers' license information, vehicle registration, citizen identification and drivers' point status. TBS aims at effective and efficient communication between the mobile units and central information system.

(2) ***Estonia:*** Many countries like Estonia have enabled M-Voting, rather Estonia is the first country to implement voting via mobile phone for a national election i.e. in Parliamentary election (in 2011). For this, citizens were required to insert their ID cards into readers attached to their computers so their identity could be verified. This service gives the citizens convenience, ease and mobility updated polling information.

(3) ***Singapore:*** The first mobile government programme (mGov) was launched under Singapore's iGov 2010 master plan. This master plan includes services via SMSes which extends current e-Services. For E.g. Singapore citizens receive passport renewal notifications via SMS. The mGov plan resulted in the launch of over 300 services available through mobile technology over a period of 5 years. Some of these services include:

(i) Services for checking information regarding bank accounts, property, investments, etc

(ii) Services for accessing weather forecast information

(iii) Appointment alert – SMS is sent to a person one day before appointments

(iv) Alert services via SMS of public crime in the neighborhood

(v) Service for traffic information and payment of traffic offenses

(4) ***South Africa:*** G2C type of Services for domestic violence against women and children can be reported via SMS in some rural parts of South Africa. Also G2G type ID tracking and tracing service via SMS is also available. In India, government must implement services for domestic violence as it of major concern for the government. This will also help in women empowerment.

(5) ***Ireland and Peru:*** Mobile technology has made easier real-time exchange of information. Ireland and Peru government uses this technology for reporting real time crime incidences. Government enables information exchange between citizens and law enforcement units. In Ireland, citizens use MMS (multimedia SMS) to send photos of criminal suspects to law enforcement units. In Peru, crime reporting systems have helped in the reduction of drug related crime.

Looking at success of these cases, India really needs to implement mobile and wireless technologies for enabling better delivery of government services to public. Despite of current economic advancement in India, we are facing health care related challenges. There is pressing need to improve health care services to promote a healthy lifestyle, to improve decisions taken by health care professionals as well as by patients. Real time access to medical information and real time communication was not possible earlier. Also lack of preventive care and diseases have significant impact on both growing population as well as on the economy. The increased usage of mobile and wireless technologies in the health care sector can bring down the cost with enhanced convenience and efficiency. Government of India needs to embrace mobile technology in health care sector also.

10. Conclusion

According to the discussion and success of M-governance projects in other countries, there are no two ways that M-governance will bring efficient, corruption free government which would bring regulation and smooth execution of laws & policies. It also improves services, decision making, staff performance and productivity. Thus increases profit and helps in fast development. All this would bring transparency in internal processes, customer convenience and satisfaction.

Considering India's current IT infrastructure state, not each and every application can be deployed on mobile. For this, M-governance has to be conceived and developed with e-governance. Local governments should choose applications wisely. Applications must be user-friendly and should deliver exactly what they claim to.

Main challenge in implementing M-governance in developing countries like India is strong communication and IT infrastructure. For this local government has to establish innovative atmosphere to encourage/facilitate growth of IT infrastructure. Use of m-governance would definitely lead local governments into the new era and boost India in economic and social improvements.

References

[1] Allapra Sarath, "Mobile phone penetration in India" http://www.slideshare.net/sarathallapra/mobile-phone-penetration-in-india. Accessed March 23, 2015
[2] "Economy of India" http://en.wikipedia.org/wiki/Economy_of_India. Accessed Feb 10, 2015
[3] Kailasam Rameesh, "m-Governance …Leveraging Mobile Technology to extend the reach of e-Governance" http://www.mgovworld.org/libra/mgovernance/papers/m-governance-leveraging-mobile-technology-to-extend. Accessed March 12, 2015
[4] Kalam Abdul A. P. J., "A Vision of Citizen-centric e-Governance for India"http://workspace.unpan.org/sites/internet/documents/S4IN13%20A%20Vision%20of%20Citizen-centric%20E-Governance%20in%20India.pdf. Accessed March 12, 2015
[5] "National e-Governance Plan" http://en.wikipedia.org/wiki/National_e-Governance_Plan". Accessed March 11, 2015
[6] Prabhudesai Arun, "India Crosses 300M Internet Users Milestone: IAMAI" http://trak.in/tags/business/2014/11/19/india-300m-internet-users-2014/. Accessed March 23, 2015

[7] Sarangdevot S.S., Tejasvee Sanjay, 2010, A Model to ICT and E-Governance for Intermediate Organizations in India, IJCSE Vol 1 No. 2
[8] Satyanarayan J., (2004). "*e Government: The Science of the Possible*", pp. 14-18