Rule of Thumb

Mobiles for Governance in India

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Foreword

India integrated to the world economy in 1991. Since then, we have made rapid strides economically. However, our rank in global competitiveness is only 71 - the lowest amongst BRICS countries. India ranks 102 among the 132 countries on the Social Progress Index, a measure of human wellbeing that goes beyond traditional economic measures such as GDP or per capita income. It is heartening that the government has made inclusive growth central to their agenda.

The mobile phone is a powerful tool in this journey of social empowerment. Today, with more than 900 million mobile phone subscribers in India, and the technology outreach to nearly 85% of India's population; we can safely say the mobile revolution is here!

The ubiquity and benefits of wireless communication can be easily proven now. A rising clamour for 'good governance' in our evolving society is also leading a momentum to utilize ICT to deliver development to the very last mile – through a 'Digital India' and a 'mobile first' approach. Empowering citizens with technologies to create more transparency in every sphere will lead to inclusive growth. Innovations through mobile applications, IVR, USSD, mobile banking, cloud computing and Machine-to-Machine technologies are connecting every possible thing on the planet. This is leading to huge transformational impacts on the industries, societies, communities.

This report by Dasra is thus a well-timed effort to study this opportunity, and explore how mobile technologies can help India overcome some of its daunting governance challenges.

To ensure that infrastructure is leveraged effectively and efficiently, it is important to have more PPPs, policies that are more future fit, quicker and uniform approvals for faster service rollout. In my view, through collective effort, we can create an India that is not only digital, makes for itself, generates employment; but also delivers inclusive growth and development. Ultimately, we should be able to harness prosperity across all spheres.

Already, mobile technology is reimagining old notions of citizenship and governance. It is making the voter better informed and the voting process more efficient. It is turning citizens into journalists and allies of local government and law enforcement. It is reducing the information asymmetry between citizens and government to improve accountability and program implementation. It is cutting through bureaucratic paper-based ways of functioning and opening up new channels of communication between us and our government.

This report does an excellent job of highlighting the work of several social organizations that are making some of this possible. It also introduces the reader to the diverse m-governance applications through examples from India and around the world.

While there is enough cause for optimism, we must tread cautiously. Where there is great promise, there are also practical socio-economic and cultural challenges. The success of m-governance will be possible with futuristic strategies, a clear and enabling policy environment, affordable and accessible solutions that meet current needs, content that is easily consumable, and large-scale digital literacy. It will take the spirit and good work of all good doers, innovators and civil society to come together and play our respective parts to help in India's prosperity.

P Balaji
Director-Regulatory & External Affairs
Vodafone India Ltd.

Executive Summary

"Nothing is more powerful than an idea whose time has come." – Victor Hugo

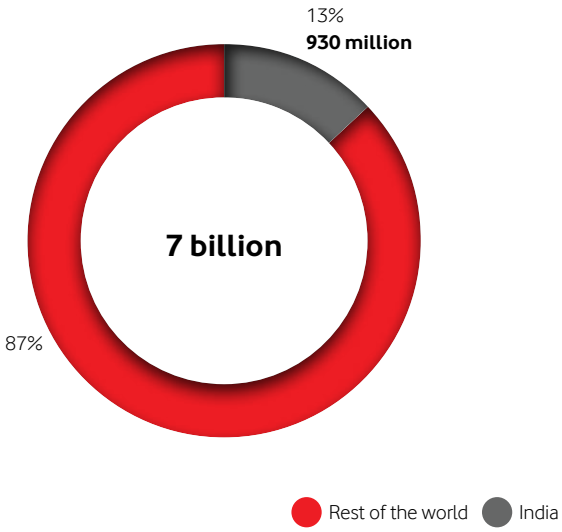
The mid-1990s in India were the first time many of us were introduced to the idea of a 'mobile' phone – at the time, a bulky unaesthetic box, but one that seemed even then to signal a turning point of sorts. Few could have predicted how quickly the then distant and utopian idea of mobile telephony would be realized.

Planet of the phones

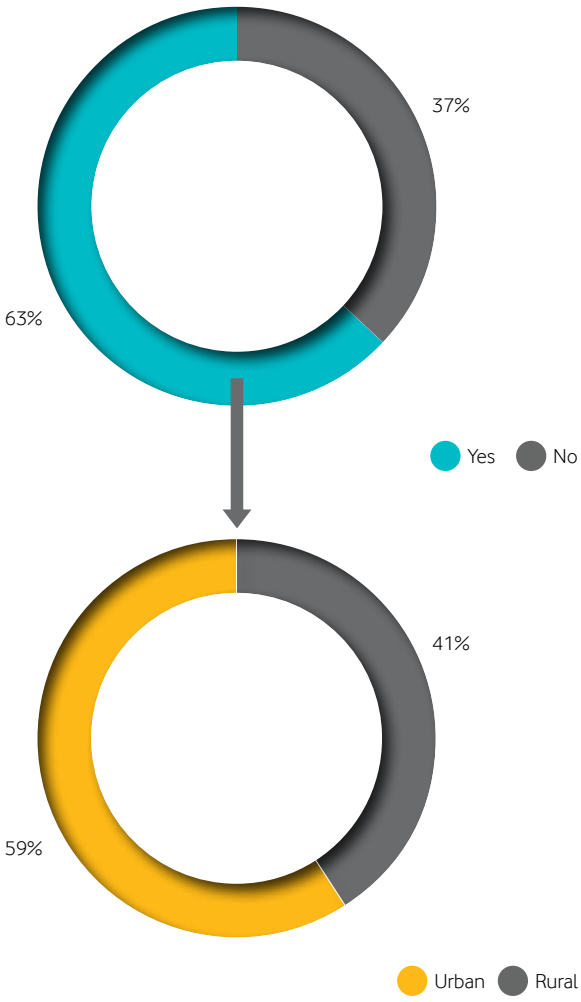
Today, the mobile phone – far smaller and sleeker than its predecessors – has revolutionized the way we communicate, and even live our lives in the first century of the new millennium. Much as the car and the airplane did in their time, it is poised to enrich lives and transform societies in ways that we cannot begin to imagine.

And India, as a rapidly growing market of mobile users, is a poster child for this boom. With over 900 million connections, and an interconnected set of networks that cover almost every village, in the potentially near future, almost every Indian will have access to voice services.

Mobile subscriptions worldwide



Mobile penetration in India
(Mobile subscriptions / population)



Growth rate (compounded annual growth) of mobile subcriptions in India during 2002-2013

Smart phone penetration in India.
Expected to grow by 40% (compounded annual growth) over the next 5 years

Percentage of all internet users in India that access the internet using mobile devices

The flip side

Just below the optimism of this story is the troubled undercurrent of India's other scores on development. Despite its growth spurts, the country continues to battle economic cyclicality, weak infrastructure, a challenging business environment, and poor education and health outcomes, among other things. These are all symptoms of an inherited governance structure urgently in need of reinventing. 'Good governance' has thus caught the collective imagination of the rich, poor, young, old, civil society, private sector, and of course, government.

The intersection of these two realities is where the story of mobile governance begins.

Not all of these problems lend themselves well to technological intervention, but it is clear that mobility can transform the way governments and citizens interact with each other. Such unrestricted communication is key to plugging much of our governance deficit.

Challenges as opportunities

This report uses the Worldwide Governance Indicators developed by the World Bank and Brookings Institute to explore India's governance challenges. The framework considers governance across six key dimensions: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption.

Against each of these challenges, the report describes the enabling role of mobile technologies using examples of m-governance initiatives on the ground, by non-profit organizations and the government. These illustrate how marrying the ubiquity of mobile technology with governance systems and processes is producing great benefits for citizens and the government alike. In addition, the report profiles 11 promising non-profit organizations and social businesses that are harnessing mobile technology to strengthen governance in India.

M-governance is being used to monitor and improve elections and project implementation, optimize traffic flows, prevent crime, discourage corruption, encourage citizen participation, pay bills, democratize media, mobilize citizens and build dialogue between the government and the people. Governance anytime, anywhere is already around us – now it needs to catch up with the sheer scale and social complexity of our population.

Play your part

M-governance in India is a developing story, and the realization of its full potential will require all stakeholders –private sector, non-profits and government – to play their part. They need to address, on the demand side: inequitable access to technology, content-driven exclusion, and financial exclusion; and on the supply side: disproportionate rural coverage, policy and infrastructure gaps, weak government capacity to respond to the increasing number of m-governance requests, and the need to ensure cybersecurity and privacy protection.

Looking ahead, the report describes the key themes for stakeholders to keep in mind as they co-create the next generation of the m-governance ecosystem.

1. **Solution design:** 'Think mobile'; work on solutions only to real problems; design those solutions around the citizen.

2. **Sustainability:** Factor in affordability by enhancing feature phone capabilities, creating low-cost smartphones, and developing innovative billing plans and business models; make the initial investments needed to improve rural coverage; scale-up successful models.

3. **An enabling environment:** Collaborate across the value chain to build the infrastructure and markets required; design policies towards data privacy and security.

4. **Constant innovation:** Be open to adopting new technology to strengthen governance.

5. **The intermediary's role:** Leverage intermediaries' expertise, access and understanding with respect to last-mile populations to develop appropriate m-solutions.

The building blocks are in place. What we need now is a guiding vision that can rearrange them to create a government that is available to its people at the push of a button.

CHAPTER 1

Setting the Context

"Good governance is perhaps the single most important factor in eradicating poverty and promoting development."

– Kofi Annan, Former UN Secretary General

In 1984, the Maitland Commission reported that over two billion people worldwide lived more than two hours walking distance from the nearest telephone.[1] This is no longer true. The introduction of mobile technology has started a mobile revolution, connecting people like never before. There are over 7 billion mobile subscriptions worldwide,[2] and India's is the fastest growing telecom network in the world. [3] The use of mobiles and mobile technology has transformed the way we interact with each other, and innovations in mobile technology have the capacity to address issues with communication and connectivity in a variety of local contexts. One of the key, potentially paradigm-shifting applications of mobile technology is in the field of governance.

With a fast developing economy and an upcoming demographic dividend, India has strong growth potential. However, the country still has a long way to go in terms of economic and human development, before India achieves its full potential. It continues to battle economic cyclicality, weak infrastructure, a challenging business environment, and among other things, poor education and health outcomes. Many of these difficulties are partially caused by a gap between policy and practice that can only be bridged by strengthening the country's underlying governance framework. The mobile revolution presents a unique opportunity to do so.

The importance of good governance

Good governance can be said to exist when the government is transparent, accountable and responsive to the needs of the people, and when citizens trust that day-to-day functions of the government will be faithfully executed. With good governance, citizens are able to pursue their daily activities and interests with confidence in an environment that makes personal accomplishment and sustained economic growth accessible to all. In contrast, a lack of effective governance restricts the personal agency of citizens and businesses, hinders personal and business achievement, and at its extreme, pushes the country towards conflict and civil war. [4]

A definition of Governance

Governance refers to the "the traditions and institutions by which authority in a country is exercised. This includes (a) the process by which governments are selected, monitored and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the State for the institutions that govern economic and social interactions among them.

- World Bank

While a slew of differently nuanced definitions of 'governance' exist, it is now broadly accepted that good governance has evolved from being the sole domain of the government to being the responsibility of three broad stakeholders – market, State and civil society.

Six pillars of good governance

This report draws on the Worldwide Governance Indicators (WGIs), developed by the World Bank and Brookings Institute, to understand India's governance status. The WGIs measure where countries stand on their quality of governance across six key dimensions:

Voice and Accountability

- Citizens are able to participate in selecting their government
- Citizens can exercise freedom of expression and association
- The media remains independent and unbiased

Government Effectiveness

- Policies are not only formulated but also implemented in true spirit
- Public services are delivered at high quality
- Power is decentralized to local governments to ensure last-mile connect

Control of Corruption

- Robust systems and processes are in place to ensure regular monitoring of progress, thereby increasing accountability

Rule of Law

- Laws as laid out in the Constitution are effectively applied and enforced
- Legal procedures are efficient and citizen-friendly
- Supporting infrastructure such as manpower and systems are improved and updated

Regulatory Quality

- Regulations are framed to the extent necessary and are transparent
- Unnecessary laws that are an obstacle to efficient functioning are regularly reformed or repealed

Political Stability

- The nation is equipped to defend itself in face of external or internal threats
- It is unlikely that the government will be overthrown by unconstitutional means

Good governance has shown to have far reaching implications for human development.

For example, when the WGI scores are improved by just one standard deviation, infant mortality declines by 2/3rds and incomes rise about three-fold in the long term.[a]

Similarly, a 1 point increase in the Government Effectiveness Index increases the FDI/GDP ratio by 4%.[b]

M-governance: why is the time right?

> **"I'm a great believer that any tool that enhances communication has profound effects in terms of how people can learn from each other, and how they can achieve the kind of freedoms that they're interested in."**
>
> – Bill Gates, author and inventor

One way to improve India's performance on the WGIs, is to use one of the country's greatest successes to counter its greatest weaknesses. Information and Communication Technologies (ICTs), particularly mobile technologies, have proven to be a powerful enabler to achieve good governance at scale, with speed. With almost 13% of the global share of mobile users,[5] India has a great opportunity to leverage mobile technology to take good governance to all corners of the country.

> **India has a 63% mobile phone penetration – 30% of the monthly increase comes from rural India.** [c]

A phone for the family

It is worth noting that though statistics place mobile phone penetration in India at 63%, [6&7] the actual reach of mobile phones, and thus m-governance, may be higher. Unlike the developed world, in developing countries like India, mobile phones are often acquired not by individuals, but by households that have never had a landline. These mobiles are used much like a landline would be – they are kept in the home, used only for emergency calls, and are often regarded as valuable resources to be shared by family members and close friends. Given this reality, it is likely that information transmitted by mobiles has far greater reach than can be quantitatively measured.

> **Adding 10 mobile phones per 100 people in a developing country can lead to approximately one half point of additional growth in GDP per person.** [d]

The demographic dividend

The potential reach of m-governance is also propelled by India's inherent demographic advantage. The 'young' (classified as people under 35 years old) are nearly twice as likely to use internet-related technologies such as smartphones as older people, and they show much greater propensity to transact online.[8] This makes the uptake of m-governance in India more likely as the median individual in India will be 29 years old (and very likely a city-dweller) by the year 2022, making it the youngest country in the world.[9]

> **Nearly 75% of new users and more than half of India's internet users in 2015 are likely to be mobile-only subscribers who will use Internet-enabled devices.** [e]

Reaching the last mile

Perhaps the most important advantage of m-governance is its ability to foster greater inclusion and achieve last-mile connectivity, allowing the government to reach people who otherwise have limited or no means of connecting with it. Rural citizens, youth, handicapped or home-bound citizens, people in remote areas, and even those who are simply too busy can all benefit from mobile access to government information and services. Newer and more cost-effective technology is making it convenient and more affordable than ever for them to do so.

> **"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."**
>
> - Former Additional Secretary, IT, Government of India

Image Credit:
Vodafone
Foundation

How does m-governance work?

M-governance uses mobile technology to improve access to governance services and provide information 'anytime, anywhere'. M-governance allows governments to bypass the need for physical networks for communication and collaboration, by providing services and information on mobile networks, thus improving the reach of governance services and last-mile connectivity. M-governance is particularly suited to the developing world where internet access rates are low but mobile phone usage is growing rapidly in both urban and rural areas.[10]

There is a wide spectrum of m-governance initiatives that serve to connect various stakeholders through varying degrees of interaction, in order to provide good governance on a daily basis. The following section provides a framework for m-governance by outlining the various modes of delivery and degrees of interaction between stakeholders.

M-governance utilizes mobile technology such as mobile phones, pagers, laptops, tablets, personal digital assistants and two-way radios to improve benefits for citizens, businesses and government.

Modes of Delivery

In general, there are four primary modes of delivering m-governance that link the four key stakeholders to the government – citizens, businesses, government employees and the government itself – and vice versa.[11] These include modes that both, strengthen the supply of governance by enhancing the capacity of the government to better provide services, as well as strengthen the demand for governance by creating platforms through which civil society stakeholders can ask for services and hold governments accountable.

The most prevalent m-governance mobile applications and services are, to a large extent, Government-to-Citizen (G2C) services. However, Government-to-Government (G2G), Government-to-Business (G2B) and Government-to-Employee (G2E) m-government services also exist. [12]

Strengthening Demand

Government to Citizen

Refers to the interaction between government and citizens

Government-to-Citizens services enable citizens to interact with government in a way that is responsive to citizen needs and communication preferences. These services help increase citizen participation and engagement, leading to greater transparency and trust.

Government to Business

Refers to the interaction between government and businesses

With considerable potential value for rural businesses, government agencies are using mobile technology to provide critical knowledge and platforms to businesses, allowing them to adopt best practices, access their clients and insure themselves against disaster.

Strengthening Supply

Government to Employee

Refers to the interaction between government and its employees

Governments provide their employees with tools, training and data access that not only help those employees in their daily work, but also improve organizational efficiencies and accountability, and enhance the quality of service provided to citizens.

Government to Government

Refers to inter-agency relationships and interaction

Government-to-Government services help governments transform themselves into a connected entity that more effectively and efficiently responds to the needs of its citizens by developing an integrated back-office infrastructure. Integrations can be horizontal (among government agencies) or vertical (between central and local government agencies).

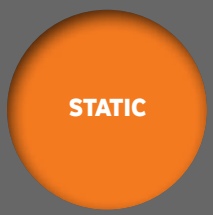
Degrees of Interaction

As adapted from a UN-developed framework, m-governance can be understood to involve four stages of progression with increasing degrees of interaction between the stakeholders: static, interactive, transactional and connected.[13] The degree of interaction is based mainly on the purpose of the interaction—provide general information, enable transactions or support continued connectivity among stakeholders. Other factors that influence this choice include existing digital infrastructure, content management systems, data management capacity and security and customer management.

Constant state of interaction among stakeholders.
Allows communication on a many-to-many basis through 'push' and 'pull' services.
Enables greater integration and coordination for faster and better decision-making.

Enables completion of transactions on a one-to-one basis.
24x7 options for payments, registrations and submission of documents.

Dialogue through one-to-one interaction.
Personalized information 'pulled' at the receiver's convenience.
Inquiries, grievances, service requests.



Minimal, one-way, one-time communication to provide basic updates.
'Push' services through a one-to-many model.
Saves cost and time and enables real-time communication.

From the field

Below are four examples from India and abroad of how the four degrees of interaction have been successfully used to deliver good governance to citizens.

CONNECTED

In the United States, emergency professionals, police officers, firefighters, and public works departments use mobile technology to link field reporting, ambulance tracking and other communication systems to administer a complex emergency management and law enforcement system.

TRANSACTIONAL

The citizen bus/train ticket system in Amsterdam allows passengers to use an IVR or the internet to request a specific route at a specific time and receive a ticket via SMS on their mobile phones; they can then show the SMS (m-ticket) to the conductor.

INTERACTIVE

India's DakNet, a store and forward wireless broadband network, uses a Mobile Access Point (MAP) mounted on a regular passenger bus to transmit information between village and district headquarters. Villagers can request information about their land records or other services through a PC in a Wi-Fi enabled village kiosk. The request is stored in the computer until a bus with a MAP passes and collects the information wirelessly. The information is then transferred to the district headquarters when the bus is within range of the Wi-Fi-enabled systems based at headquarters. The villager receives the response when the bus 'delivers' the information back to the PC in the village kiosk.

STATIC

Singapore's citizen alert system sends SMS notifications about library book deadlines, passport renewals and flight information.

OECD (2011).
M-Government: Mobile Technologies for Responsive Governments and Connected Societies.

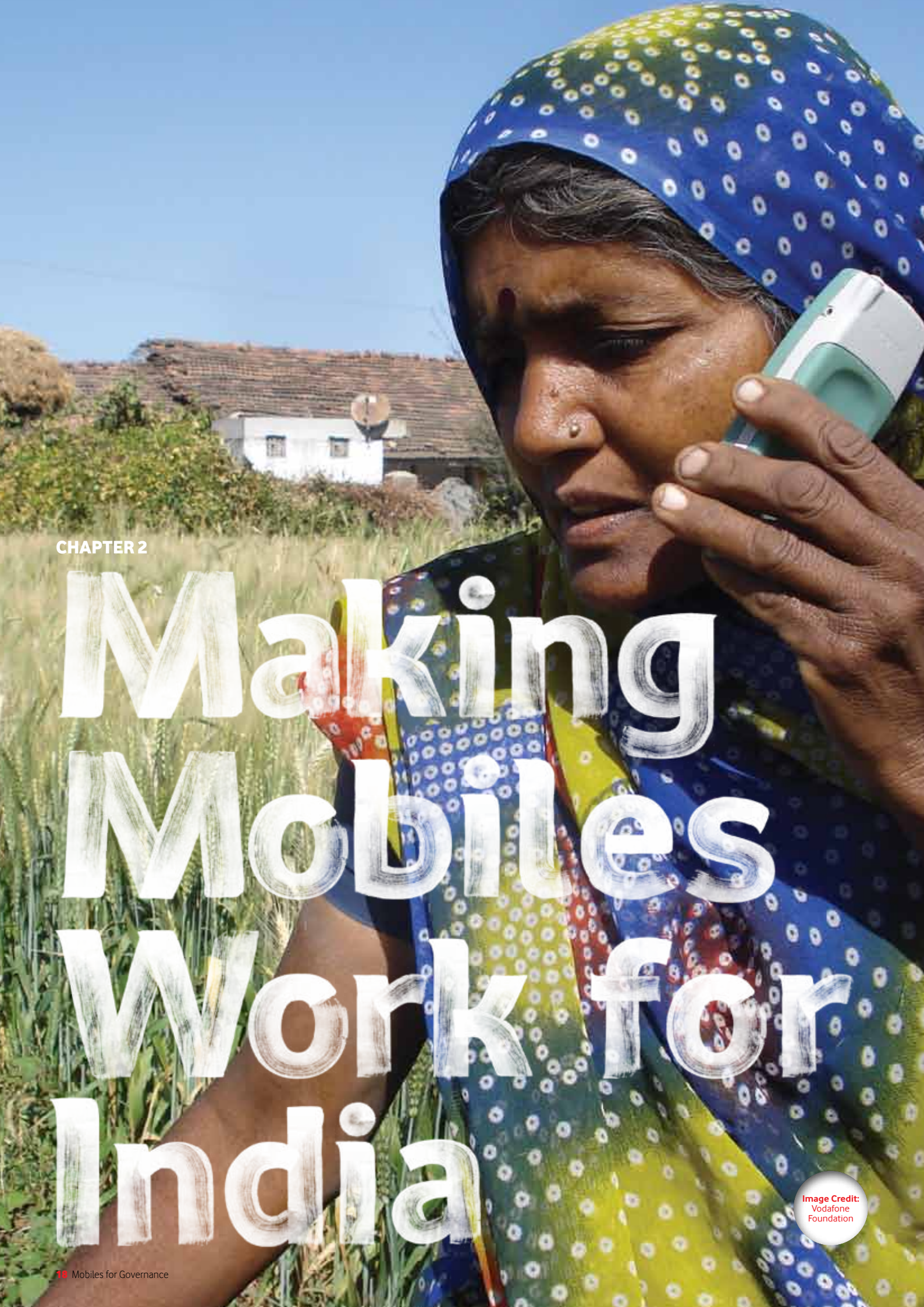
Image Credit: Vodafone Foundation

Spectrum of m-governance

Using the preceding frameworks, the following table provides examples of the types of m-governance applications possible across the continuum of stakeholder interaction. M-governance efforts in various countries are spread across this spectrum depending on local needs, contexts and capabilities.

	Government to Citizens	Government to Business	Government to Government	Government to Employee
Connected	Allows citizens to be in regular touch with the government with minimal effort • Open and regular interaction with elected representatives via SMS		Allows government departments to be integrated to increase efficiency • Coordination between ambulances, fire-fighters, emergency personnel and police	
Transactional	Sustained, two-way interaction between citizens and government • Allows citizens to access services 24x7 and complete transactions at their convenience – making payments, filing tax returns, buying tickets etc.	Allows businesses to engage with suppliers/ clients and buy/ sell goods without having to register and go through complicated processes		Government officials such as site inspectors and community health workers use hand-held devices to input data without having to go back to their offices, increasing on-field responsiveness and productivity.
Interactive	Citizens can engage in dialogue with government for: • General inquiries • Service requests: emergency assistance • Complaints: service interruptions, corrupt government officials, voting issues • Reporting: crime, missing children, suspicious activity	Allows small businesses to: • Ask for and receive targeted business advice – farming, animal husbandry • Check progress of applications/ certifications	A government department provides and receives real-time data to and from other departments via mobile technology during natural disasters or security threats to prevent damage/ loss and provide aid.	Government workers in rural or remote areas use hand-held devices such as mobile phones to take pictures of projects (construction of roads/ bridges) and send them to their supervisors at the state/ national capital, enabling regular monitoring and higher accountability at low cost
Static	Citizens are sent SMS with: • Information on emergencies: natural disasters, terror attacks, accidents • Notifications: road closures, security regulations • Educational messages	Small, remote and rural businesses are provided with information on: • Best practices – farming techniques • Impending changes – weather, policy • Aid and industry trends	A particular government department provides one-way information to other department heads about its performance – systems maintenance, backlogs, failure alerts	Community health workers are provided training modules and education material that is embedded in mobile phones. This enables the government to maintain high quality standards while training remote officials at low cost.

It is becoming increasingly clear that the mobile revolution in India is creating a climate that is conducive to reimagining old ways and paving the way for m-governance. The true test of the effectiveness of m-governance, however, will be in its ability to strengthen the six pillars of governance (WGIs) in India. The following section provides an overview of the challenges to governance in the country using the framework of the WGIs, by analyzing each through an 'issue-root cause-intervention' model to understand the gaps, draw out the root causes of those gaps and provide examples of m-governance interventions currently being used to overcome them.



CHAPTER 2

Making Mobiles Work for India

Image Credit: Vodafone Foundation

This section outlines mobile technology opportunities within each of the six Worldwide Governance Indicators (WGIs) by detailing:

1. **The basic issues in India as they relate to each WGI**
2. **A matrix of contributing causes and some illustrative interventions**
3. **The role of mobile technology in improving performance on that WGI**
4. **Some examples from the field**

1) Voice and Accountability

The extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

What is the issue?

1.Low participation in elections and uninformed voting
The 2014 general elections in India were the largest exercise in democracy carried out anywhere in the world. While the Election Commission has been deservedly lauded for its mammoth effort, 34% of the electorate did not vote.[14]

Voter apathy, perhaps a key contributing factor, is not the only one. For many, a basic lack of awareness about how to navigate processes such as voter registration, checking voter lists and identifying polling stations becomes a deterrent to participating in elections. When they do vote, more often than not, citizens lack the information they need to critically evaluate candidates and make important decisions about who to vote into power.

On the supply side, outdated or incomplete electoral rolls, delays in processing voter applications and issuing voter cards, and election-related violence deter voter participation.

> **During the 2014 general elections, as many as 100,000 voters in Pune and 200,000 in Mumbai were missing from electoral rolls.** [f]
>
> **"I got my voter card three months ago, but have been waiting for the last two hours to cast my vote, since my name is not in the list."**
>
> **"People with voter ID cards had not been given voter slips. Many of them returned without voting because they got tired of being sent from one booth to another."** [g]

2. Under-reporting of locally relevant stories by the media
The media is often called the fourth pillar of democracy because of its vital role in disseminating knowledge, spotlighting common-interest issues, and shaping public opinion. However, for the media to realize this potential, independence, widespread access, and a plurality of voices and perspectives are critical. Unfortunately, the vast majority of the population, largely comprising the poor and marginalized, remain grossly under-represented in Indian media. This lack of public attention to serious challenges prevents public scrutiny of government performance and weakens the government's accountability to its people.

Logic Model for analyzing role of non-profits in improving voice and accountability through m-technology

Issue	Cause	How is mobile technology currently playing a role?			Initiatives
		Intervention	Nature of Interaction	Mode of delivery	
1. Low participation in elections and uninformed voting behavior leading to criminalization of politics. • 66% voter turnout across the country in 2014 elections • Urban turnout continues to be low at 48-69%	**Supply side inefficiencies** • Mismanagement of electoral rolls • Bureaucratic delays in voter registration, voter card provision • Election-related violence	**Mobile applications** allowing users to report election-related violence using real-time location data services **Mobile applications** to automate part of the process of voter registration and voting	Interactive Transactional	G2C G2E G2C	**Non-profits** Association for Democratic Reforms (ADR) Mumbai votes **Government** Election Commission
	Poor voter awareness about candidates and political parties, procedures to apply for voter cards, relevant polling booth etc. 30% of Lok Sabha MPs have criminal cases pending against them, but citizens are often unaware of such critical information	**Pull/ push SMS** and **mobile applications** to provide information on candidates and voting-related information **Toll-free helplines** to address queries on voter enrolment and register complaints **IVR** to disseminate audio transcripts of MP/MLA video interviews	Static Interactive Interactive Static	G2C G2C G2C	
	Voter apathy, especially among urban citizens Trust in government fell by 27% points (to 55%) between 2007 and 2012	**Mobile applications** engaging citizens to rate MPs/MLAs in their constituency on various services.	Interactive	G2C	
2. Reduced media independence leading to reporting bias, and under-reporting of relevant local issues India is the second largest newspaper market in the world, but ranks 140th out of 180 countries in the World Press Freedom Index 2014	**'Media dark' areas** that are poorly linked to mainstream media (language, distance, insufficient focus on local stories)	**Voice-based media platforms** for listening to and sharing locally relevant news and stories	Interactive	C2C	**Non-profits** Gram Vaani CG Net Swara

The role of mobile technology

- In the electoral process

Current mobile applications for strengthening the electoral process are focused on increasing voter participation and education, and making the voting process more efficient. 'Push' and/or 'pull' technology is used to disseminate information about candidates, political parties and election-related procedures using Short Message Service (SMS), Interactive Voice Response System (IVRS) and toll-free helplines. Some interactive applications take feedback from citizens on pertinent issues close to elections, as well as enable citizen-reporting of electoral irregularities or violence. Broad applications for mobile technology in the electoral process include:

- Efficient and convenient voting
- Better-informed voting
- Online voter registration
- Remote electronic voting

In strengthening the role of media

Given the regulatory nature of the subject, the role of mobile technologies in addressing issues of media independence is limited for the time being. Where these technologies can have – and are having – great success is in including populations so far excluded from the public discourse, and expanding the voice and role of the citizen in journalistic reporting. The broad areas include:

- **Making media more inclusive and accessible:** The role of media as an agenda-setter includes leveraging its influence and reach to create awareness and draw public attention to pervasive and often under-reported developmental challenges. This gives the neglected a voice and creates an imperative for a stronger government response to these public concerns. Providing unbiased content and platforms to bring out the citizen voice also helps create more engaged and empowered citizens.

- **Mainstreaming citizen journalism:** With a mobile phone in hand, potentially anyone can gather information, interview people, capture live events, seek comments from experts and publish their stories via community radio, blogs, videos, Wikipedia and other platforms. The importance of citizen-generated journalistic content – to expand the scope of discourse and monitor – traditional news media, is increasingly acknowledged in developed countries such as France and the United States, and emerging markets such as China and India.[15] As news generation becomes increasingly more bottom-up in under-represented, misunderstood, conflict-stricken or invisible parts of the country, it is expected to occupy a larger share of mainstream reporting and public discourse.

From the field

Mobile Seva / making voting more convenient

Using the Polling Station Location App developed by Mobile Seva, the Indian government's award-winning mobile applications store, the Election Commission of India has mapped more than 910,000 polling booths in the country and has made them available on a Web-based map service. This has made it much easier for people to locate polling booths near their homes.[16]

myneta.info / informing voters

Through its website myneta.info and a mobile application of the same name, Delhi-based non-profit Association for Democratic Reforms provides citizens with easily accessible information on national and state election candidates' background and criminal details through simple Web and SMS interfaces.

Another non-profit, Mumbai Votes, uses IVR to disseminate audio transcripts of MP/MLA video interviews – providing an opportunity to everyone, including the illiterate,

Received 30,000 requests for candidate information per day

Saw its SMS subscriber base grow from 500,000 to ~2,500,000

Launched its mobile application Election Watch Reporter inviting citizens to report instances of electoral malpractice.

CGNet Swara / sourcing local stories

CGNet Swara has helped many rural poor living in the tribal belt of Gondwana – which includes parts of Chhattisgarh, Madhya Pradesh, Odisha and Andhra Pradesh – to use the mobile phone to listen to and share locally relevant news stories in their local languages. In the true spirit of 'media for and by the people', communities elect their own moderators who are trained by CGNet on skills such as fact checking and verifying stories before they are broadcast. There are several anecdotes of prompt action taken by the authorities in response to citizen grievances thus aired. Each day, CGNet Swara gets about 500 calls, of which 50 are recorded and five stories are broadcast.[17]

Gram Vaani / radio on mobile

Gram Vaani allows rural populations to access a radio platform on their mobile phones free of cost, using an IVR system. It has partnered with 90 organizations to deploy its voice-based technologies, reaching over 2 million users in 15 states in India and seven countries. It supports 40 community radio stations, and runs a mobile-based voice platform, Mobile Vaani, with 500,000 users in Jharkhand and Bihar.[18]

2) Government Effectiveness:

The quality of public services, quality of civil service and degree of its independence from political pressures, quality of policy formulation and implementation, and credibility of government commitment to such policies.

What is the issue?

1.Insufficient decentralization is diluting potential gains from local governance

Strengthening local governance is key to ensuring the people's voice is heard; it is an impetus for greater local accountability and responsiveness. Global evidence has shown that decentralization improves policy outcomes in areas such as education and health.[19 & 20]

In 1993, the landmark 73rd and 74th Amendments created a system of constitutionally mandated local democratic institutions at the rural (Panchayati Raj Institutions) and urban (municipalities) levels in India. Yet, more than 20 years on, the extent of real decentralization of funds, functions and functionaries remains far from desirable.

> **India has the smallest share of local expenditure as a proportion of consolidated public sector expenditure and GDP – 3% and 1% respectively.**
>
> **In OECD countries, local expenditure makes up 28% of public expenditure and 13% of GDP on average.**
>
> - World Bank

2.Gaps in data lower quality and responsiveness of decision making process

Given India's geographical spread and the multiplicity of government bodies that hold a range of diverse data classes, the information that decision-makers need is often incomplete, inaccurate or hard to come by – or may simply not exist.

3.Low levels of accountability and government efficiency

With over INR 300,000 crore allocated by the Centre in its 2014-15 budget to 66 Centrally Sponsored Schemes, which include 17 flagship programs and hundreds of others at the state level, the importance of monitoring the implementation of welfare schemes and government projects on the ground cannot be overstated.[21]

Logic Model for analyzing role of non-profits in improving government effectiveness through m-technology

Issue	Cause	How is mobile technology currently playing a role?			Initiatives
		Intervention	**Nature of Interaction**	**Mode of delivery**	
1. **Insufficient decentralization** of funds and functions from Centre to states and further to local governments leads to poor service delivery and lack of accountability	Lack of proper skills and capacities for planning and execution at lower levels of government (especially panchayats and municipalities)	**Mobile platforms** to coordinate participatory planning meetings such as gram sabhas, area sabhas, ward sabhas; and creation of peer networks among local administrators	Static Interactive	G2G, G2C	**Non-profits** Awaaz.de E-governments foundation Social cops V-Empower Women Organization for Socio-cultural Awareness **Government** Janwani
		Mobile applications and platforms to invite citizen participation in local planning (e.g. online participatory budgeting)	Interactive	G2C G2G	
		Creation of **peer networks** among local administrators to share challenges and best practices	Connected	G2G	
		Software that allow government functionaries to **access data on their mobiles** for prompt decision-making	Static	G2C, G2G	
		Mobile applications to share data, pictures, videos regarding civic issues for action by the local government	Interactive		
2. Gaps in data lower the quality and responsiveness of decision making	Resource constraints Significantly paper-based system Multiplicity of government agencies	**Mobile applications** that last-mile workers – community volunteers, ANMs, Anganwadi workers – can use to capture on-ground progress such as attendance in schools, children immunized etc.	Interactive	G2E	
		Mobile applications for government authorities and contractors to use for improved project monitoring	Interactive	G2G, G2B	
		Mobile applications for citizens to report grievances for action by relevant authorities	Interactive	G2C	
3. Low levels of accountability and government efficiency NREGA provides less that 50 days of work to rural households annually against the minimum 100 guaranteed	**Lack of sufficient systems and procedures to monitor progress and ensure accountability**	**Mobile-driven project management** systems to monitor progress of projects and service delivery of government teams spread across various geographical areas	Interactive	G2G	
		Mobile technology to integrate various existing databases	Connected	G2E	
		Mobile-based surveys to track scheme entitlements	Interactive	G2C	
		Mobile technology to collect and disseminate information to citizens about the state of civic utilities and train them to use this information to demand their rights	Interactive	G2C	
		Mobile **participatory budgeting**	Interactive	G2C	
	Poor awareness about government programs and schemes among intended beneficiaries In one study, only 30% of people surveyed in Andhra Pradesh were aware of NREGA	**Push/pull SMS** and **toll-free helplines** to facilitate one-on-one interactions about public schemes	Static Interactive	G2C	
	Lack of platforms for citizens to interact with government	**Mobile and web platforms** for two-way communication – live chats, discussion forums, talks etc.	Interactive	G2C	

The role of mobile technology

Mobile solutions are revolutionizing the way governments function – by automating processes, capturing real-time data using location-based services, enabling remote transactions, creating platforms for multi-stakeholder dialogue – the list of experiments in the area is extensive.

Improving process efficiency at the back-end:
Adapting to mobile technology is something not only government agencies, but also many private companies struggle with. But if mobile technology is a challenge, it is also an opportunity: a chance for the public sector to reassess its business practices, boost its efficiency, and renegotiate its relationship with the public it serves. Used right, mobile technology can reduce employee absenteeism, close the productivity gap and transform the government's capabilities.[22]

Capacity building through peer-learning networks:
A government is only as good as the individuals that comprise it. While classroom-based on-going capacity building and training is perhaps irreplaceable, mobile technology provides opportunities for remote peer-learning which can be greatly beneficial, as evidence has shown in several areas including health, behavior change and livelihoods.[23]

Data creation and collation for better informed decision making:
At all levels of government, data-driven applications of mobile technology are being used to design projects based on data-driven needs assessment, monitor projects on the ground often with citizen participation, and enable continuous improvement by establishing regular feedback mechanisms. Citizens often lead such data generation efforts to engage more meaningfully with government authorities.

Monitoring and tracking implementation of government programs:
To ensure that the government is making good on its promises, non-profit organizations work to influence policy makers and implementers at various levels – from elected representatives at the national level to the block development officer who is actually involved in service delivery. Use of evidence-based advocacy through field research and citizen surveys to more effectively influence policy across levels is an emerging trend. Mobile technology is helping make this process easier and more efficient.

Improving efficiency and citizen convenience:
The National e-Governance Plan (2006) is the first technological initiative to advance access to government services and reduce the cost of delivery. Its key recommendations include mobile-compliant government websites, open standards for mobile applications to ensure inter-operability across operating systems and devices, and mobile delivery of services by all government departments and agencies to the extent possible.[24]

Mobile participatory budgeting:
Participatory Budgeting[25] reduces costs and enables wider participation from citizens. Several successful initiatives around online participatory budgeting have begun to emerge, particularly from Latin America.[26 & 27] Mobile phones are used to invite citizens through geo-targeted SMS messages, vote on priorities, announce the voted decision, and allow them to offer feedback and monitor the chosen projects through text messages.

From the field

eGovernments / helping municipalities improve processes

A Bengaluru-based non-profit information technology solutions provider, eGovernments Foundation enables municipalities to improve their internal processes and systems such as expenditure and revenue management and citizen transactions. The organization's software solutions are currently deployed across 275 municipalities across India.[28] It is currently in the process of creating mobile applications to make its software accessible on mobile platforms.

Awaaz.de / creating peer networks of women panchayat presidents

India has 3 million elected panchayat representatives, of whom nearly 1.5 million are women, many of who need skills – to listen, speak, negotiate, collaborate and realize the potential of their position.[29] Partnering with Stanford University's Program on Liberation technology, Awaaz.de, an Ahmedabad based start-up is conducting a pilot project aimed at creating a peer network of women panchayat presidents across Maharashtra.[30] The technology provides a voice-based group messaging and information service to share concerns, queries, and solutions to common issues on the Awaaz.de platform.

Social Cops / real time data for local decision-making

Social Cops, a Delhi-based technology data company, uses mobile-based crowdsourcing and surveys for the real-time tracking of parameters such as quality of public infrastructure and teacher attendance in public schools, to enable informed decision making by governments, non-profits and civil society.

Through the use of the Social Cops mobile app in Ranchi, more than 2,000 street lights were installed in the darkest and most vulnerable streets in the city – as identified by the citizens.

WOSCA / tracking last-mile entitlements

Women's Organisation for Socio Cultural Awareness (WOSCA) tracks entitlements of schemes using mobile phone technology across 58 villages of Keonjhar district in Odisha. WOSCA focuses on tracking the Public Distribution System (PDS), National Rural Employment Guarantee Act (NREGA) and pension schemes. Village volunteers monitor the entitlements on a real-time basis at service delivery points and send the delivery details to a central server through a mobile handset using SMS or MMS. As a result of its mobile-based monitoring, 4,844 fraudulent PDS cards have been seized, 4,238 poor families gained access to PDS, and 11,219 families accessed employment benefits.[31]

V-Empower / connecting citizens to parliamentarians

V-Empower Inc., a US-based technology consultancy has designed and developed a mobile application called mpConnect, which allows Indian citizens to connect with their Member of Parliament (MP). Using mpConnect, constituents can call, text and e-mail their MP to have more influence in politics and get their voice heard. MPs can also interact with citizens by engaging with them to get feedback and views, and address their concerns.[32]

Janwani / participatory budgeting for better infrastructure

In 2013-14, Janwani, the social wing of Maratha Chamber of Commerce, began the process of participatory budgeting with the Pune Municipal Corporation (PMC). Citizens could suggest civil works for their locality through a Web-based application developed with the help of KPIT Cummins. Janwani and KPIT Cummins are currently developing a mobile app for participatory budgeting for the PMC.[33 & 34] As a result of this initiative, INR 38 crore (~$6 million) and 846 works suggestions were ultimately incorporated in the 2014-15 PMC budget.

3) Control of Corruption

Control of corruption: Perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests.

What is the issue?

In 2013, India ranked 94 out of 177 countries in Transparency International's Corruption Perception Index.[35] The Index respondents regarded virtually all of India's key institutions, both private and public sector, as being corrupt or extremely corrupt. At the top of the list were: Political parties (86%), Police (75%) Public officials (65%) and Parliament/ legislature (65%).[36]

A similar study conducted in 2007 estimated that a third of all 'below the poverty line' households in India paid INR 8.83 billion in bribes, within one year, to access 11 selected public services, including police, housing, NREGS, PDS, health, school education, and water supply.[37] India spends close to 4% of its GDP on welfare schemes and subsidies.[38 & 39] Ensuring that public money is well spent and that citizens, particularly the poor, are granted the rights and entitlements guaranteed to them by the government, is thus hugely important.

A study by Ernst and Young and FICCI showed that between just October 2011 and September 2012, India lost INR 36,400 crore (~$5.9 billion) due to corruption.

Logic Model for analyzing role of non-profits in improving control of corruption through m-technology

Issue	Cause	How is mobile technology currently playing a role?			Initiatives
		Intervention	Nature of Interaction	Mode of delivery	
High levels of perceived and real corruption – leading to high economic cost, wastage and poor service delivery	**Lack of proper systems and procedures to ensure accountability**	Using mobile technology during **social** audits to enable faster, more accurate data collection	Interactive	G2G	**Non-profits** Ipaidabribe.com Program on Liberation Technology, Stanford University **Government** Aadhaar
		Using **mobile-driven project management** systems to monitor progress of projects and service delivery of government teams spread across various geographical areas	Interactive	G2E	
		Providing a **platform** for citizens to report instances of corruption by the authorities	Interactive	G2C	
		Mobile-enabled payments to reduce intermediary layers	Transactional		
	Poor awareness of and weak implementation of the RTI and accountability tools such as social audits The collective backlog in 23 information commissions in India was about 200,000 in 2013. If one were to file an RTI application with the Madhya Pradesh information commission, the appeal would come up after 60 years	Creating awareness about rights, the purpose of RTI, and its benefits. Providing a mobile IVR platform that makes it convenient for citizens, particularly illiterate citizens, to file RTIs and track progress	Transactional	G2C	

The role of mobile technology

What allows corruption to thrive? Among the gamut of answers, the one that stands out for India is the lack of accountability stemming from poorly developed monitoring systems for government and business activities. Mobile technology can mitigate corruption by reducing information asymmetries and lowering monitoring costs within the interactions between stakeholders.

Although still in their infancy, there are many examples around the world of mobile technologies having been successfully used for anti-corruption efforts. Mobile phones have been used to facilitate the reporting of corruption, monitor projects, budgets, elections and public service delivery as well as to promote transparency in operations by providing information to service users.[40] They can thus reduce opportunities to engage in corruption and increase the risk of detection. While some initiatives reduce incentives for corruption using citizen pressure, the application of mobile technology in government processes is helping to institutionally enforce integrity in service delivery and reduce corruption-related leakages.

> **A study across 46 African countries found that higher mobile phone penetration is significantly correlated with lower levels of perceived corruption.** [h]

Broad anti-corruption applications include:
1. Lowering monitoring costs by crowd-sourcing information about instances of corruption
2. Reducing information asymmetry and leakages in public spending

> **"Widespread smartphone use is allowing citizens to send pictures, in real time, to Delhi Police Department's Facebook page featuring traffic violations. In Africa, SMS technology is allowing citizens to check if the drugs they are buying in the pharmacies are genuine. In many Latin American countries, citizens can upload pictures of public projects and their GPS coordinates to ensure there are no ghost infrastructures."**
>
> - Annette Dixon, Country Director, World Bank Thailand

From the field

Janaagraha / I paid a bribe

Ipaidabribe.com is a mobile and Web-based platform created by Janaagraha for reporting of bribes from across India. It archives when, where and by whom the bribe was solicited as well as the amount. It allows people to share first-hand experiences of petty corruption via internet and text messages, as well as look for help in resolving their grievances by sharing the incidents with the media and government. At last count, 27,953 reports had been filed from 714 cities amounting to INR 225 crore (~$ 36 million). Ipaidabribe.com has been duplicated in various countries, including Pakistan, Kenya, Nigeria and Zimbabwe.[41]

> **Two main categories of citizen reports:**
> **• "I Am a Bribe Fighter," which documents instances where a citizen resisted or refused to pay a bribe**
> **• "I Met an Honest Officer," which documents instances where a citizen was not asked to pay a bribe by a government official.**

Stanford / ensuring grassroots delivery

Stanford University's Program on Liberation Technology is exploring mobile technology applications to track entitlements under government welfare schemes. Recipients are sent information about entitlements due to them – how much rice, wheat or kerosene they are entitled to – through voice and SMS services. Citizens can provide feedback on entitlements actually received, and submit official complaints through a simple interface on their mobile phones. The feedback is used by activist networks for advocacy and collective action on their behalf. A pilot of the project has begun in four states – Andhra Pradesh, Bihar, Chhattisgarh and West Bengal – covering issues such as health, education, food and employment.[42 & 43]

Indian government/ eliminating layers

India's Direct Benefit Transfer (DBT) scheme is aimed at transferring government benefits directly into the hands of residents through a biometric based identification system (called Aadhaar), which provides end-to-end transparency and eliminates layers of intermediaries, speeding up payments, removing leakages and enhancing financial inclusion. DBT enables disbursements to take place at the doorstep of the beneficiaries through a network of business correspondents who make the payments using mobile 'micro-ATM' machines.[44] The government plans to also link mobile SIM cards with Aadhaar numbers to deal with misuse of technology for diversion of subsidies, criminal acts including terrorism and making financial transactions on mobile more fool-proof and robust.[45] In Telangana state's Adilabad district, the linkage to Aadhaar-DBT has resulted in reduced leakages of about INR 45 crore ($7.3 million approximately), and about INR 120 crore ($19.4 million approximately) in East Godavari in less than a year. [46]

4) Rule of Law

Rule of law: The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

What is the issue?

Designing and enforcing just laws is the basis of a fair society, providing the necessary checks and balances to protect the weak against the strong.[47] India's constitution – the longest in the world with over 1,200 statutes at the Union level alone – enshrines a democratic legal framework that provides such protections on paper.[48] But the gap between the written word and its enforcement has led to a disquieting state of affairs where the sanctity of the rule of law is routinely undermined and access to justice is long-drawn or often elusive.

Larger questions around the need for legal reform and redesigning (British) legacy institutions and law enforcement bodies will need addressing. But operational challenges such as a shortfall in available manpower and resources for upholding the rule of law are more amenable to technological interventions.

Logic Model for analyzing role of non-profits in improving rule of law through m-technology

Issue	Cause	How is mobile technology currently playing a role?			Initiatives
		Intervention	Nature of Interaction	Mode of delivery	
Wide gap between laws on paper and their application on the ground India ranks 96 out of 97 countries on 'order and security' according to 2012 World Justice Project	**Judicial delays further leading to low incentive to abide by the law**	A barcode assigned to a service application used to track the application, send reminders to officers, and make inquiries on pending cases	Static	G2C	**Non-profits** Safecity **Government** Supreme Court of India Nepal Cambodia South Africa Tajikstan
	Inadequate manpower	Mobile applications that allow citizens to report crimes. This data is visualized on a map of the city for use by law enforcement agencies	Interactive	G2C	

The role of mobile technology

Applications of mobile technology for strengthening the rule of law and expanding access to justice, while nascent, are helping both citizens and law enforcers converge and thus be more effective. Current work globally is focused on creating a larger role for citizens in identifying and reporting issues of crime and safety for better targeted responses, and better access of all stakeholders to information about legal proceedings and judicial appointments for better accountability and efficiency. Some key applications are as follows:

Access to information to reduce delays and irregularities: Mobile technology, by now ubiquitous, allows citizens to become active aids to law enforcers such as the police through mobile phone-based monitoring and reporting of crime. High-profile incidents of crime, terrorism and human rights violations throughout the world have proven how valuable mobile phone images, for instance, can be to crime investigations. Witnesses to the London bombings in 2005 used their cell phone cameras to record their experiences in the aftermath. Police in London were able to use the cell phone photos as clues to find the terrorists behind the bombings.[49]

Capacity building support to law enforcement agents:
In-person training programs for police personnel and court officials are expensive – in terms of cost and time spent away from actual work. Mobile training programs are effective in providing and upgrading knowledge and skills of government workers at minimal cost and time.

Reporting crimes:
Online crime reporting can work remarkably well, harnessing the knowledge and networks of communities and saving money that would otherwise be spent on desk officers taking reports in person or by phone. But that success depends on people believing that police will swiftly take action on their reports, which in turn depends on law-enforcement agencies integrating crime-mapping initiatives into their broader operations in the first place.[50]

Awareness among citizens about legal rights and judicial processes:
Judicial delays are the product of a number of factors, not in the least the lack of timely information to victims, defendants, lawyers, even the media. Although sending an SMS does not replace official notification, it provides information to the parties so that they can take necessary measures without delay. This system reduces costs, prevents red tape and ensures availability of information.[51]

It is also helpful to look at innovators such as the winners of the 2014 World Justice Challenge organized by the World Justice Project.[52] Training law enforcers, educating citizens about their rights and judicial procedures, providing legal aid, open sourcing and fostering greater collaboration between and among citizens and legislators on design, monitoring and compliance emerge as growing areas for mobile technology applications.

From the field

Safecity / citizens against crime

Safecity, a Delhi-based non-profit allows citizens to report crimes and this data gets visualized on a map of the city for use by the police force. People log in complaints of harassment and create pins for those areas. Once it is known, for example, that five others have faced crimes in the area, it becomes a hot spot. This information can be used by the individuals and government to make necessary corrections for public safety.

Supreme Court of India / access to information

Along the lines of the widely regarded 'National Judiciary Informatics System' in Turkey, the Supreme Court of India launched a mobile application in 2014 for users to access information on various operations of the court. It gives users access to the court's display board, cause lists, case status, office reports, daily orders and judgments.[53]

India and Nepal / training police on the go

In one case, a mobile training platform addresses the lack of adequate training of city police forces in India and Nepal which are facing the challenge of policing rapidly urbanizing populations. This program will create a low-cost mobile phone-based visual training system that will give police personnel a platform to access short training and informational videos on their mobile phones.

Cambodia, South Africa, Tajikstan / making justice more accessible

In Cambodia, a program will raise awareness among people of their rights and the judicial process by producing video clips on fair trial rights such as the right to be presumed innocent, the right to legal representation, the right to liberty, and juveniles' rights.

In South Africa where courts are under-resourced, a program will provide judges with high quality academic research through 'virtual research assistants' who can respond to email/SMS requests from judges and send documents to the judges via email.

In Tajikistan, a program will provide a nation-wide free legal consultation hotline, focusing its service on women and vulnerable groups. The program will produce a confidential online database for lawyers, donor agencies and hotline consultants, and work with the media.

5) Regulatory Quality

The ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

What is the issue?

India is among the most over-regulated countries in the world.[54] This is an important factor for its poor performance on the World Bank's 2014 'Ease of Doing Business' Index – ranking 142 among 189 countries. It is also a deterrent to private sector development, which is central to India's economic prosperity.

Logic Model for analyzing role of non-profits in improving regulatory quality through m-technology

Issue	Cause	How is mobile technology currently playing a role?			Initiatives
		Intervention	Nature of Interaction	Mode of delivery	
A discouraging environment for the private sector leads to heavy economic costs to the country India ranks 142 among 189 countries on the World Bank's Ease of Doing Business Index 2014	**Burdensome and unnecessary laws that have not been adequately reformed or repealed in keeping with the current context**	Mobile applications that allow for collaboration between the government, private sector and citizens for legislative inputs	Interactive	G2G G2C	E-Democracia

The role of mobile technology

Cutting through the legal clutter is proving to be an extremely technical exercise that calls for a nodal body and mandated processes for impact evaluation, periodic review and overall coordination of repeals.[55] While mobile technology has a limited role there, it could help enhance the process by virtually convening diverse viewpoints to enrich debate and ultimately laws.

Brazil / public participation in law making

Public participation in the law making process is vital to the successful functioning of democracy. This idea stems from the belief that lawmaking can benefit from the convergence of political representation and citizen participation, in a virtuous cycle where one model strengthens the other.

While still very nascent, a promising example of this idea in action comes from Brazil. The mobile-friendly e-Democracia platform was launched in June 2009 by the Brazilian Chamber of Deputies around the theme of 'virtual legislative communities' bringing together different actors. On the platform, citizens can share information about a problem, identify possible solutions, even draft legislation through the wikilegis platform, which allows them to track and comment on pending legislation, article by article.[56]

As of August 2013, the portal had about 3,000 debates (forum threads), 17,400 contributions, and 27,400 registered participants.

30% of the text of the Youth Statute bill and several features of a bill on Internet regulation were based on participant suggestions.

Image Credit:
Gram Vaani

6) Political Stability

The likelihood that the government will be destabilized or overthrown by unconstitutional or violent means.

What is the issue?

While the '26/11' terror attack on Mumbai is perhaps the most audacious and well-known external attack on Indian soil, it was by no means an isolated instance. India – with a 7,000 km coastline and 15,000 km of land border to defend – on several occasions has seen war, as well as violence primarily on account of religious and ethnic differences.

Logic Model for analyzing role of non-profits in improving political stability through m-technology

Issue	Cause	How is mobile technology currently playing a role?			Initiatives
		Intervention	Nature of Interaction	Mode of delivery	
Internal and external security threats	Surrounded by historically aggressive neighbours such as Pakistan and China, with a 7,000 km coastline and 15,000 km land border to defend	Using **Big Data** generated by mobile technology for back-end analytics to pre-empt violence and terrorism	Static	G2G	US Homeland Security
Potential eruption of religious, ethnic riots and territorial disputes	Diverse religious, linguistic and cultural population				

The role of mobile technology

The use of mobile technology in Indian efforts to counter violence and terrorism directed at the State has been limited so far. The current government is expected to link mobile SIM connections with Aadhaar numbers to curb the misuse of mobile phones for any terrorist act, extortion or other offences. But few other efforts have so far focused on mobile technology applications. Small-scale efforts scattered across the world illustrate the potential of mobile technology, especially in preserving the sanctity of electoral processes, and strengthening traditional national security intelligence efforts.

United States / countering terrorism with big data

As mobile penetration has sky-rocketed, so has the opportunity to gain even more insights into how individuals or groups spend their time. This type of 'Big Data' is being used by law enforcement agencies around the world to ensure public safety and security. Homeland Security in the US is combining data from social media with existing departmental data to identify hot spots, correlate deployment of thousands of police officers, initiate operational orders and retrospectively identify potential witnesses. They currently use predictive analytics to conduct investigations more efficiently, deploy people where they are needed, examine security threats and behavior patterns, and deliver intelligence to officers when and where they need it.[57]

More from the field

Mobile seva / India's m-governance one-stop

Mobile Seva, the national mobile-governance initiative of the Department of Electronics and Information Technology (DeitY), aims to provide government services to the people through mobile phones and tablets. Among its features is a government mobile applications store accessible free of cost at www.apps.mgov.gov.in.[58]

The Mobile Seva AppStore hosts 315 live apps and is used by 1,710 departments and agencies across the country

Over 2.05 billion SMS based transactions

2 lakh cumulative app downloads

Mobile Seva won the United Nations' Public Service award in 2014

Applications available include those related to tracking of Right to Information, passport applications, status of voters lists; locating hospitals, police stations, ATMs; sending of alerts in emergencies; downloading various statutory documents such as birth, death certificates, pension forms; remote monitoring of health parameters by health professionals; maintenance of health records; paying bills of the municipal corporation; viewing the Supreme Court display board etc.

Estonia / remote electronic voting

Estonia has allowed e-voting since 2005, making it the first country in the world to do so. To make it possible to vote via mobile phone, mobile operator EMT created the world's first mobile identification service in Estonia. In the 2011 parliamentary elections, about 25% of Estonians voted via the internet. Independent security audits have found the Estonian system effective and reliable.[59]

Gujarat was the first Indian state to experiment with internet voting.

The Bihar Election Commission will introduce e-voting in the next urban bodies polls.

DRC / participatory budgeting

A World Bank program used mobile phones to enhance participatory budgeting processes in the Democratic Republic of Congo's (DRC) South Kivu province.[60 & 61] Mobile phones were used to:

1.Invite citizens to the participatory budgeting meetings through geo-targeted SMS messages.

2.Vote on the priorities citizens would like to see addressed in their community.

3.Announce the voted decision, making the process more transparent and inclusive than ever before.

4.Allow citizens to offer feedback and monitor the chosen projects through text messages.

Some outcomes include:

-Construction of 54 classrooms, repair of a bridge in Luhwinja, construction of a health center in Bagira, construction of public toilets in the Nyawera market and the supply of drinking water in Ibanda

- Increased tax compliance

- Extension of participatory budgeting to all 27 decentralized territorial entities in South Kivu

Nigeria / constitutional elections

Mobile technology played a defining role in Nigeria, where an otherwise robust economy was threatened by political instability. An open-source software platform called Frontline SMS was launched in Nigeria in 2007 to crowd source election-monitoring. Volunteers submitted observations via SMS from local polling stations, preventing voter fraud and gathering foundational data for the country's future democratic process.[62] Since then it has grown into a subscription-based alert system that keeps locals informed of security risks where there had previously been an information vacuum. It is also an aggregator tool for businesses and government officials to collect data on emerging threats and instability.[63]

Image Credit:
Gram Vaani

CHAPTER 3

Strengthening the Mobile Ecosystem in India

Image Credit: Vodafone Foundation

This section outlines ways to plug the gaps in India's mobile infrastructure and make it robust and fertile enough to realize the full potential of our mobile services. It details:

1. Demand- and supply-side challenges
2. How stakeholders can address those challenges

The first mobile phone call in India was made in August 1995.[64] Five years later, in 2000, data services on mobile phones were introduced.[65] Today, India has over 930 million mobile connections, and almost 40% of internet users in India access the internet through a tablet or mobile device.[66]

However, if India is to move from mere connectivity to creating a comprehensive m-governance framework, we need an evolved mobile ecosystem that covers the length and breadth of the country. This section explores the demand and supply challenges to m-governance in India, as well as the role of the stakeholders – government, corporates and civil society – in building a robust mobile ecosystem designed to support better governance.

Demand Challenges

- **Inequitable access to technology**
- **Content-driven exclusion**
- **Financial exclusion**

Inequitable access to technology

- The digital divide: While 63% mobile phone penetration[67] is considered high for the Indian context, it still means that millions of people, mainly the urban poor and remote rural populations, have no mobile phones. Most of those who do can only access basic voice services, but not the Internet and other enabling utilities that need smartphones and premium technologies – of the 930 million mobile connections in India, only about 10% are for smartphones.[68] In a world where economic advantage and social connectivity require information access, those without information stand to find themselves on the wrong side of the digital divide.[69]

- The social divide: Entire segments of the Indian population are excluded from the benefits of mobile technology for reasons beyond economic constraint. The uptake of m-governance is also choked by low perceived value of technology as well as simply the resistance to change – especially among the old, the poor and government employees (who fear redundancy). Perhaps most difficult to address however, are the social barriers. It is estimated that in rural India, only half as many women as men use mobile phones.[70] In many cases, women are forbidden to use mobile phones by their husbands, fathers or village leaders, who see this technology as "facilitating the moral erosion of rural societies."[71]

Content-driven exclusion

- Literacy: India's literacy rate hovers around 75%.[72] This is a major barrier in allowing citizens access to m-governance systems that typically rely on text to convey information. Everything from mobile operating systems and option menus to SMS services and apps are usually text services, which prevents a quarter of India's population from participating.

- Language: English is the most used language on the Internet,[73 & 74] but the bulk of India's population is not conversant with it. This excludes them from text services, and therefore from access to m-governance. Even specialized India-specific or regional content is generally offered in English, or in some cases Hindi. Very little information is translated into any of the other 22 officially recognized Indian languages for specific purposes.

Despite the sheer volume of Indians – across languages – using the Internet, there isn't a single Indian language on the list of the top-10 most used languages on the Internet. [i]

- Mobile orientation: The lack of Internet content that has been optimized for smartphones also obstructs mobile connectivity. Such content is easy to read on a desktop computer but difficult on mobile browsers, making it necessary for governments, businesses and private users to optimize their Internet content.

Financial exclusion

A major challenge to establishing a complete m-governance framework – with transactional G2C services in particular – is the large number of people without access to the formal banking system.

This means that a significant section of the population, despite access to mobile connections and smartphones, cannot connect to some parts of the m-governance framework as they cannot use their mobile phones to make e-payments or transact online. They cannot use mobile technology to pay their taxes and electricity bills, for instance, or send and receive money, or buy services online.

40% of India's population lacks access to the formal banking system. [j]

There are currently 19.5 million credit cards in circulation in India, compared to 92 million smartphone connections. [k]

Supply Challenges

- **Covering rural areas**
- **Unstable policy and inadequate infrastructure**
- **Capacity to deliver on m-governance**
- **Cybersecurity and privacy protection**

Covering rural areas

With 70% of India living in rural areas, the true potential of m-governance lies in its ability to connect these remote, rural populations to government with minimal effort and expense. But tele-density in rural India, at 44%,[75] is extremely low compared to the urban population's 142%. Also, rural expansion needs massive investment for a comparatively small yield. Other challenges include the high cost of supplying and maintaining mobile equipment in remote areas. Also, in rural India the terrain is often rough, demand is low, electricity is insufficient, purchasing power is relatively limited and the Average Revenue per User generated, in the end, is also low.[76]

Kajrai, Madhya Pradesh: 40 residents of this remote village – population 700 – have acquired mobile phones. The village has wireless service but no electricity. As a result, the villagers travel almost 20 km every day to get their phones charged. [n]

Unstable policy and inadequate infrastructure

The expansion of m-governance in India needs strong mobile infrastructure and the technology to utilize that infrastructure. A key component of mobile infrastructure is spectrum, and the efficient management of spectrum is vital to the health of the sector. For example, it was found in 2012, that inefficient management of spectrum by the Department of Telecommunications had left over 85,000 crore worth of spectrum unallocated for the last five years.[77]

The process of licensing frequency bands to mobile telephony operators requires a clear and predictable process for resource utilization to be maximized. When the process is mismanaged, spectrum can go unsold or sold at such a high price as to reduce opportunities for network investment. Currently, India has much less mobile broadband spectrum allocated than markets with high mobile broadband penetration. The release of additional usable spectrum will make services more affordable, while the harmonization of spectrum – which means governments and operators align their choice of spectrum with existing international spectrum – will create an ecosystem that makes mobile phones less geography-limited and therefore more affordable. This will play a key role in driving mobile broadband growth in India, boosting mobile networks' overall capacity, quality and user experience.[78]

What is spectrum?

All wireless communication signals travel over the air via radio frequency, known in the industry as spectrum. It is the lifeblood of any mobile network. Spectrum is also a finite resource, as multiple operators cannot transmit wireless signals over the same frequency in the same markets at the same time. The amount, type and conditions of use of spectrum operators have directly impacts the speed and reach of mobile services. Maximizing mobile penetration will therefore need an efficient and equitable system to manage spectrum. m&n

Capacity to deliver on m-governance

If public services are poorly delivered on conventional channels – due to resource scarcity, inefficient resource use or even corruption and absenteeism – then they are unlikely to be better delivered with the added reach of m-governance.

Lishoy Bhaskar, vice-president at MobMe, the implementer of Kerala state's public services delivery platform, says many government officials in the developing world understand the benefits of m-government but often hesitate to implement it because "there is no one to fix the potholes even if they are reported." [79]

Citizens will quickly lose trust and interest in m-government programs if the government is not responsive. This risk extends not only to those programs aimed at making governance transparent and accountable, but also to those where technologies are supposed to improve service quality by reducing wait times or simplifying processes. If the government fails to follow up on the expansion of a service – for example, by being unable to serve a surge of patients showing up at health clinics because of better information on medical conditions – it risks losing credibility.[80]

Cybersecurity and privacy protection

The United States Computer Emergency Readiness Team has said security measures for mobile phones, especially smartphones, have not kept pace with security measures for personal computers.[81] As governments, businesses and private citizens begin to entrust more and more of their sensitive data to mobile devices, it is important that they be assured of its security.

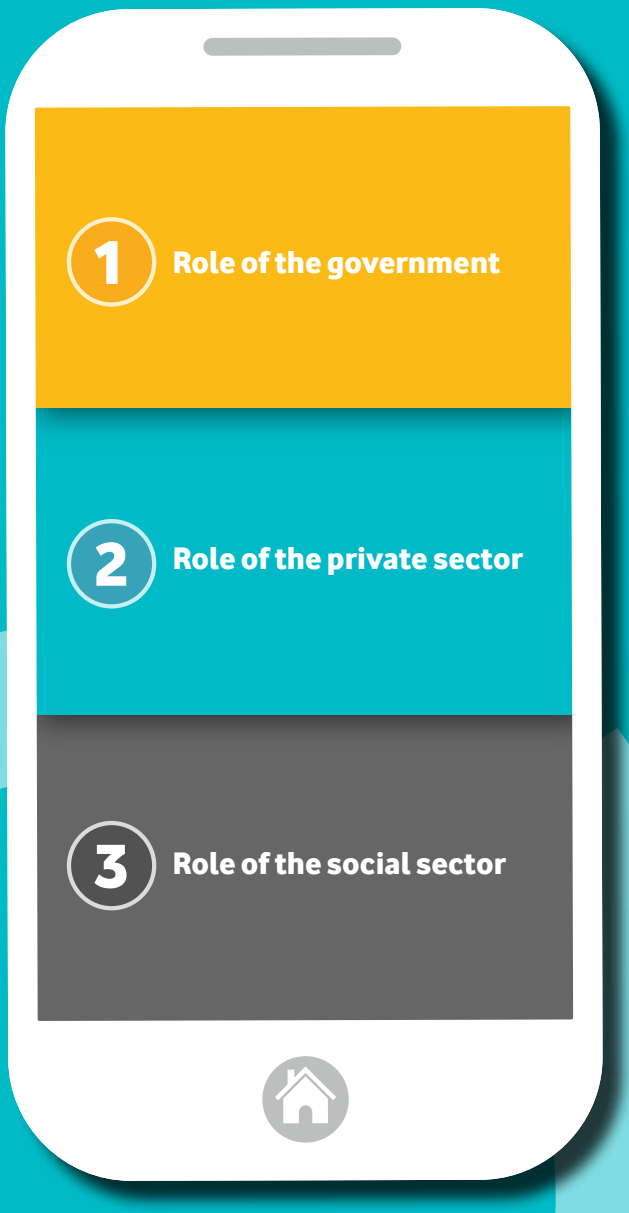
Security measures such as firewalls, antivirus and encryption, which are fairly common on personal computers (PC), are uncommon on mobile phones. Mobile phone operating systems are not updated as frequently as those on PCs, and mobile social networking applications sometimes lack the detailed privacy controls of their PC counterparts.[82]

Security measures must keep pace with the innovations that allow users to transact from their mobile phones, to protect stakeholders from exploitation through data theft.

It is also important to have policies in place to govern who has access to the collected data and private information, how it is used and how to protect it from external exploitation. This means there is a need to safeguard information privacy through attributes that exceed anonymity, and reach into undetectability and identifiability, as well as a need for strong data encryption.[83] The protection of these attributes introduces technical challenges since these privacy requirements must be factored in while designing technical solutions.[84]

Role of stakeholders in addressing challenges to m-governance

Role of stakeholders in addressing challenges to m-governance
The stakeholders in the mobile ecosystem broadly comprise three categories: government, private sector and social sector.



Role of the government

For governments, m-governance helps cut costs by improving efficiency without reducing service quality. For citizens, it means new methods to communicate and access channels, and ultimately meet their social and economic needs. To maximize these benefits, governments must first focus human and financial resources on the following specific challenges.

Policy, infrastructure and technology

Update policies: When governments open the mobile market for competition and invest in mobile projects, availability of mobile devices and accessible pricing structures increase. Eliminating import duties on mobile products can also accelerate mobile acceptance by driving down user costs; economic policies that impact the ability to own mobile phones also affect adoption. Also, given that initial costs for mobile and broadband networks are so high that the public sector cannot extend them to rural areas, policies that incentivize the private sector to finance infrastructure can reduce this burden.[85]

Guidelines for digitization: There is a need for a comprehensive government policy with guidelines for the digitization of data,[86] data sharing between departments, service delivery and data security. India's m-governance framework, set out in 2012, outlined the scope of our m-governance initiative, and the Department of Information Technology's implementation strategy. It commits to establishing the Mobile Services Delivery Gateway, the core infrastructure to allow multiple government agencies to deliver public services via mobile devices, and to ensure the timely implementation of the framework.[87]

Management of spectrum: Another issue is the management of spectrum to deliver high-speed mobile services to urban and rural consumers. For this, governments will need to improve the efficiency of traditional users of spectrum such as television broadcasters and the military.[88] Governments need to ensure that the new spectrum is aligned to international standards. Allocating the same new frequency bands across entire regions, not just individual countries, can dramatically reduce the cost of consumer mobile devices and operator network infrastructure, and also enable international roaming.[89] For this, the mobile industry, governments and regulators need to agree on the amount of new mobile spectrum required, identify appropriate new bands, and show how existing users can be accommodated in different bands or with a reduced amount of spectrum.[90]

Content

Governments must ensure that content available to citizens via mobile technology is relevant. This means that even national-level content from central- and state-level government websites, for instance, must be accessible in local languages.

Back-end service delivery

The government urgently needs to build the capacity of its departments to deliver services according to citizen demand. This will need greater efficiency and accountability, minimizing of bureaucratic delays, and training to make its employees equipped to respond to increased demand for services. It must also incentivize and encourage a shift away from the traditional paper-based culture towards technology adoption among staff at all levels, in service delivery as well as in internal processes.

Role of the private sector

Private sector actors in the mobile ecosystem include telecom operators, device manufacturers, infrastructure providers, application developers, and content developers and enablers. Each of them has a significant stake in resolving challenges to m-governance, given that such resolving of issues will expand the consumer base and eventually contribute to the profitability of the telecom sector. The private sector is also often characterized by a large resource base and thus has the ability to play a significant role in facilitating the spread of m-governance.

> **Mozilla plans to unveil a $25 (around INR 1,500) smartphone in India and Indonesia. It aims to use this phone to create a new market for smartphone users by competing with the feature phone market instead of their more established competitors in the smartphone market. [o]**

Access to technology

Building feature phone capabilities: Of the 933 million mobile phone connections in India,[91] less than 10% are for smartphones.[92]

Device makers thus have a role to play in increasing access to technology by making it more affordable. This includes producing low-cost smartphones, as well as feature phones with heftier capabilities such as providing access to Web-based content through USSD.[93] Telecom operators also have a role to play, in tailoring tariff plans to local needs and laying down the infrastructure required to cover the target market for low-cost smartphones.

> **Samsung and Aircel have come together to implement Google's Helping Women Get Online program in India, targeting over 4 million literate women from low-income groups. It aims to promote mobile Internet access among women through Internet training sessions on low-cost Samsung smartphones on the Aircel network, a toll-free helpline and attractively-priced data plans. [p]**

Digital awareness and literacy: The private sector also has the capacity to support large-scale efforts around behavior change and mobile literacy though marketing campaigns. Entertainment services, such as local language music and videos are popular among new users, and could be used to deliver education and awareness. If designed and promoted well, digital media could even precede traditional avenues and become the primary source of literacy for millions. Additionally, para-technicians (much like paramedics) – with a working knowledge of computers and the Internet – could potentially be intermediaries who expand adoption of such technologies among first-time users.

Content
Telecom companies must develop intuitive, easy-to-use voice- and number-based mobile operating systems and services so that illiteracy is not a deterrent to mobile connectivity. Specifically, there is a need for simple graphical interfaces and strong local language support, such as an India-specific mobile operating system, or specific sector applications aimed at particular constituencies groups of people.

It is estimated that the commercial viability of mobile infrastructure installed by individual operators remains doubtful in over 60% of the geographical area of India. [q]

Policy, infrastructure and technology
One of the telecom sector's biggest hurdles is the prohibitively high cost of covering far-flung rural areas. Infrastructure sharing is one viable solution to resource constraints. When telecom operators share infrastructure, it can lower costs, allow faster and more efficient expansion of coverage, and a higher rate of return on their investment in infrastructure. In India, there is a need for active (in addition to passive) sharing of infrastructure. Passive sharing involves pooling of towers, cables, physical sites, power supply, air-conditioners, alarm systems etc. Active sharing involves antennae, transmission systems and base station equipment. Active sharing is estimated to save an additional 40% of infrastructure costs on top of passive sharing benefits.[94]

O2 and Vodafone, the second and third largest mobile network operators in the UK have worked together since 2012 on a site sharing project to cut costs and enhance service delivery. Their combined national grid has 18,500 masts, a 40% increase for each operator that allows them to offer 2G and 3G indoor coverage for around 98% of the UK population – with better service indoors and in rural areas. [r&s]

Financial inclusion
Telecom companies can drive the growth of mobile or branchless banking, bringing unbanked rural customers into the formal banking system. The private sector must use its expertise and human capital to create programs for financial inclusion, in conjunction with banks, microcredit institutions, non-profits and social businesses. Additionally, options such as direct-carrier billing for smartphone customers, in which telecom operators facilitate e-payments by billing online charges to users' wireless phone bills, have the potential to unlock the Indian digital market.

CASE STUDY

In 2013, Vodafone brought to India M-Pesa, a mobile money transfer service with a successful record in Kenya. M-Pesa allows users to deposit money into an account stored on their cell phones, send money to others using PIN-secured SMS messages, and deposit and withdraw money from a network of agents that includes airtime resellers and retail outlets acting as banking agents.

M-Pesa offers a solution to the challenge of financial inclusion in India, by facilitating money transfers to unbanked rural areas (only 5% of the 100,000 banks in India are in rural areas). Through pilot programs in Jharkhand and Odisha, Vodafone has shown that M-Pesa can reduce payment delays, reach consumers without bank accounts, and cut out dishonest and corrupt middlemen from the disbursement process of various government schemes. India's limited banking infrastructure, migrant workers' need to send money home in a secure manner, and Vodafone's distribution network – with 1.7 million points of access in India and deep rural penetration (of its 170 million users, 53% are in rural areas), together create conditions conducive to the success of M-Pesa in India.

Sen, S. (2014). Inclusion by mobile. Business Today India.

Role of the social sector

The social sector, comprising of non-profit organizations and social businesses, has a vital role to play. In some cases, the ability of these organizations to connect with communities has given them a position of influence with both citizens and the State, and thus a strong chance at brokering 'good governance', specially on the back of the mobile revolution.

In others, the strength of their expertise has made them worthy partners for decision-makers in government. Many of them work with bottom-of-the-pyramid consumers and underserved populations, and thus understand their needs and socio-economic contexts better than most. This allows the social sector to offer insights on rural markets, and act as an intermediary and advisor to the government and the private sector on establishing an m-governance framework.

Access to technology
Non-profits and social businesses can increase people's access to mobile technology by promoting physical access in remote areas through their own programs, and increasing the adoption of mobile technology through behavior change initiatives and mobile literacy.

In the first case, for example, ASHAs, Anganwadi workers or volunteer health workers may be given mobile phones or tablets for data collection and creation of a database of health records. When a few members of the community are seen with this technology, it increases receptivity to such technology among the others, especially as they begin to experience its benefits.

In the second case, organizations use communities' trust in them to convince members of the value of technology and connectivity, especially with the government, and the importance of removing social restrictions that prevent women and other vulnerable members of society from using technology.

Organizations that actively use mobile technology in their programs – for example, to notify farmers about crop prices, or inform beneficiaries about government schemes that are relevant to them – can effect behavior change faster than formal awareness drives and mobile literacy programs.

Content
Non-profits and social businesses, given their close contact with the end-user, are best placed to advocate for services that meet local needs. They can thus intermediate and advise on developing targeted content for these communities, and guide the government on services that are most vital to last-mile consumers, barriers to accessing these services and the best channels to maximize reach.

Service delivery
Non-profits and social businesses often play a role in service delivery wherever the government needs them to. Their capacity building support to the government ranges from leadership training to providing clarity on roles and responsibilities, project implementation, even research to identify gaps. They may also work with the government as on-ground implementation partners. For example, some organizations work with state or local governments on given service delivery targets – such as release of payments to NREGA workers or pensioners. Automating SMS or voice notifications to beneficiaries about the arrival of payments and amounts due, for example, increases accountability and transparency.

Financial inclusion
Financial inclusion is an important step – it allows previously excluded populations to take advantage of mobile banking services. This includes convenient, fast and secure payment of utility bills, user and registration fees, licensing fees, RTI payments etc., as well as the ability to receive direct cash transfers from the government.

Non-profits and social businesses can improve financial literacy at the community level – inducing the disadvantaged to save, access credit, use funds to improve livelihoods and thus join the mainstream. They also act as intermediaries for formal banking institutions, by facilitating opening of bank accounts, even conducting banking transactions on behalf of community members. As more people are brought into the formal banking system and m-governance becomes much more accessible, financial transactions between citizen and State will become increasingly mobile.

> **In terms of overall financial literacy, India is at the bottom of 16 countries in the Asia-Pacific region, with 59 index points, according to the annual MasterCard index for financial literacy.** [t]

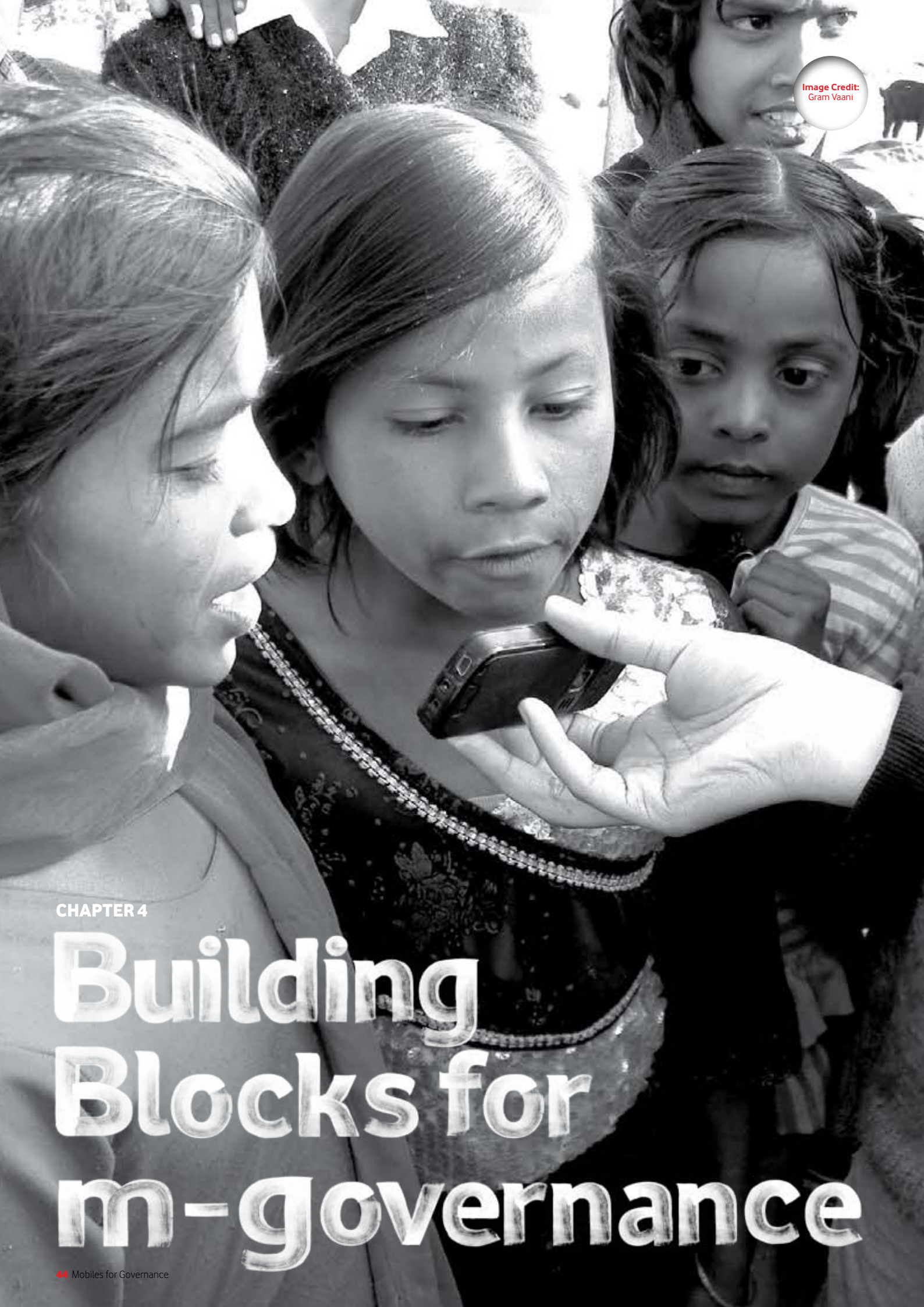
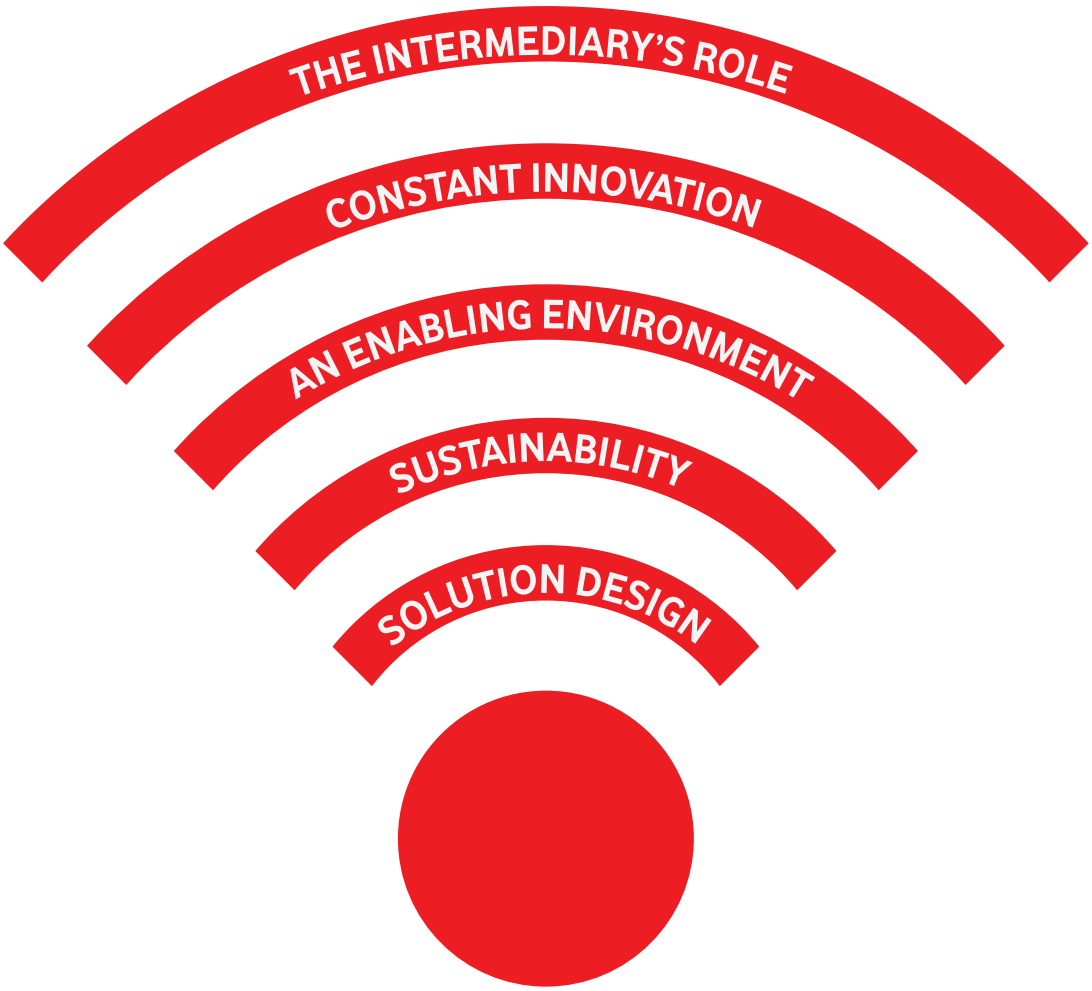


Image Credit:
Gram Vaani

CHAPTER 4

Building Blocks for m-governance

M-governance is not merely a series of standalone initiatives; rather, it is becoming a strategic and integral way for the government to engage internally and with citizens. As described in the previous section, the adoption of mobile technologies is propelled by a number of factors, including policies, standards, cultural trends, availability and costs. As stakeholders better understand these realities and develop m-governance solutions around them, they will need to be strategic about aspects such as design, sustainability and creating an enabling ecosystem for m-governance. The following pages expand on these key thematic areas:



1. Solution design

The success of mobile governance solutions, as with any other piece of technology, will be determined by its perceived value for users and ease of use. Both depend on whether the new offering is a significant improvement, addresses a pressing need, has a firm basis for employing mobile technology and takes into account local contexts.

Solve a problem only if it is real

Not every government service can be adapted to mobile technologies (for example, services that need large amounts of data to be downloaded to mobile phones). The government and private players must be careful not to 'go mobile' for its own sake.[95] They must have a compelling objective that mobile solutions can further, and then analyze how mobiles can address specific challenges. This should apply to internal applications as well: they must achieve visible benefits and allow users to work more cheaply, more quickly, and with less effort, or help them overcome limitations of time and space.[96]

Adopt a 'mobile-first' approach

To fully capitalize on the medium's capabilities, mobile technology must be a priority, not an afterthought. This can be done by designing for smaller screens first and then progressively enhancing features and content for bigger screens, instead of the other way around.[97] Leading with mobile applications and products, rather than treating them as enhancements or add-ons, is the necessary approach. Mobile-first is the best preparation for India's exponentially growing mobile user base, not to mention the time and cost of future redesigns. This needs infrastructure designed to redesign rather than simply duplicate existing processes and technologies.

Citizen-centric governance

Currently, the emphasis is on creating solutions for citizens instead of with them. This shift will improve not just service delivery, but also the ways in which the government approaches a problem. Involving frontline workers and the end user in the design process can provide valuable insights on technical and social factors that will influence adoption, such as ease of use, interface, appeal and functionality; as well as on literacy, language, local workflows and connectivity – all of which are critical to determine an application's success.[98]

Rethink business processes

Our government's workforce and managerial structure has not evolved much over time. Major challenges continue to be addressed by creating new, permanent departments and agencies – an unsustainable model in a world of rapidly changing demand and an equally rapidly evolving technology.[99] To maximize impact from mobile technology, specifically in m-governance, governments must move away from archaic, paper-based processes in favor of digitized ones. The leapfrog potential is of particular value in developing countries like India, and stands to put them at par with their developed counterparts.

CASESTUDY

GovCloud as a way forward

GovCloud – a service introduced by Deloitte – applies the principles of cloud computing to how governments organize their workforce. By pooling workers in a government-wide 'cloud', resources can be quickly moved from low-need to high-need programs and agencies, without requiring individual agencies to hire new workers or create sub-agencies. This can adapt to changes in work, workplaces, workforces, processes and workforce trends and expectations. While cloud solutions are not as capital and infrastructure heavy as physical expansion, their complexity cannot be underestimated.

2. Sustainability

Keeping in mind that m-governance in India serves to create last-mile reach and improve access to the marginalized, a sound business model and product innovation are crucial for the sustainability of mobile technology in India.

Control costs

Affordability is a major challenge in developing countries. Most mobile subscribers in India are on prepaid schemes in which they 'top-up' (load airtime) when they need to make a phone call or send an SMS. Geography then becomes the next bottleneck, when users have to walk miles to access small ration stores to buy this top-up credit. Also, the current system charges citizens for the service – this is a deterrent because most of them have limited purchasing power. The government does offer several toll-free, voice-based services, but it needs to consider standardizing all information-based services as no-fee offerings.[100]

Another key factor is the price of smartphones, which are seen as better suited to m-governance. While prices of these phones are declining – the average price of a handset has fallen from INR 8,250 in 2012 to INR 7,000 in 2013 and INR 6,202 in 2014 – they continue to be out of reach for most, especially rural users. India remains primarily a feature phone country.[101] Most subscribers own basic phones that make calls, send text messages, play music, and in some cases allow basic Web browsing. This is why feature phones must be at the center of mobile application development.

Provide initial investments

Donors and multilateral institutions, which know the value and reach of m-services, can infuse capital into m-services until they start to yield revenues.[102] Also, international financial institutions and development donors can build smaller players' capacities in mobile technology across different spheres such as health and education.[103]

Grow beyond pilots

India has been called a 'graveyard for pilots'.[104] Mobile applications that provide similar m-governance services are scattered across different states under numerous pilots. These often lack standardization, uniformity or inter-operability. Once innovative approaches are tested and fine-tuned, the next step must be a more coherent and large-scale effort to deploy technology. Integration is a critical function, as it facilitates the move from pilots to scale, preventing an unnecessary reinventing of the wheel.

3. An enabling environment

All the stakeholders – government, corporations and civil society – have a role to play in creating an environment that encourages end-users to be active participants in m-governance.

Coordinate across the value chain

Besides government agencies, the other key stakeholders include mobile service providers, infrastructure, hardware and software vendors, system integrators and device manufacturers, retailers and local sales agents, regulators, banks, international donors and civil society.[105]

Scaling mobile technology for effective public service delivery depends simultaneously on these players. Currently, their roles in the mobile ecosystem are not clearly defined, and synergies have not been identified, which calls for a rethink of some of their existing strategies. The government must institute a top-down push for collaboration, and ensure that all the players see enough returns to stay incentivized.

Ensure security

One of the most commonly cited challenges on large-scale deployment of m-governance is the potential security threat. Mobile technology, at its most evolved, includes several components – the cloud, the device, in-house data centers and back offices, and the network – and any of these components can be a carrier of the threat.

Mobile technology is largely seen as a passive resource open to threat.[106] What is still mostly unrecognized is its potential to enhance security. These devices can be used to verify identity, transmit encrypted data or enable access to a site or service. Mobile banking, for example, is an m-service that has made substantial progress, despite the obvious security concerns. Consumers are becoming increasingly comfortable with logging into their bank accounts on their mobile phones. To ensure transaction security, banks have developed several layers of authentication – an approach with potential for perhaps all m-governance applications.

India could formulate policies that automatically apply standard organizational security protocols to every remote device.

4. Constant innovation

As mobile devices become increasingly smaller, ubiquitous and affordable, we can expect constant innovation in the application of mobile technology. Three particular areas that are considered m-governance tools for the future are: Augmented Reality, wearables and cloud computing.

Augmented Reality

Augmented Reality (AR) is a class of applications that enhances users' perceptions by overlaying information and graphics on to their field of view. The user's location and direction are transmitted wirelessly in real time to a Web service that provides information specific to that area. The view is interactive and maps directly to the user's perspective, allowing him/her to specify the kind of information and submit it back to the Web service. The user need only view an object of interest to retrieve more information.

For example, a witness to a crime can tap on an emergency button on their phone and immediately upload video and still photos to local authorities. His/her position and direction are embedded in the notification automatically, while retaining anonymity.[107]

Wearables

Wearable technology refers to clothing and accessories that incorporate computing and advanced electronic technologies. It is available in numerous forms, including glasses, watches, smart badges, bracelets and health trackers, and its potential is tremendous: hands-free, heads-up technology could reshape how work gets done, how decisions are made, and how the State engages with employees, citizens and partners:

- A tool like Google Glass could improve communication across cultural barriers – helping interpret gestures and providing context above a human translator's inputs.
- Users in the middle of an evacuation or other crisis could benefit from hands-free gadgets and ways to keep in contact with a centralized communication system.[108]
- A police officer could use a pair of smart glasses to get information about a person within the officer's field of view. The glasses could take a picture of the person and run it through a cloud-based police database that used facial recognition technology – a match would alert the officer.[109]

Cloud computing

GovCloud, a service introduced by Deloitte, applies to government the key concepts of cloud computing – shared resources, cost-effectiveness, dynamic scaling. The GovCloud model could become a new pillar of government, comprising permanent employees as well as those outside government, such as citizens looking for part-time work, contractors and consultants. The concept is designed to be adaptable as well as applicable to a wide range of entities.[110]

During the February 2010 snowstorms in the US, when its government was essentially shut down, an estimated 35% of federal employees worked from home – this was possible because their data was stored on cloud servers.

5. The role of the intermediary

As mobile technology evolves from being a nascent sector to one with potentially universal applicability, the intermediaries – community-based organizations, non-profits, and small and medium entrepreneurs in India – have gone well ahead of local and national governments on the adoption of this technology. This is why their expertise, access and solid understanding of last-mile populations will be critical to the growth of our mobile governance ecosystem.

India is home to some of the most innovative m-solutions that are addressing serious governance issues in simple and effective ways. Non-profits and social businesses are building capacities on both, the demand and supply side. The next section profiles some of the most impactful models in India that funders should support and take to scale.

CASESTUDY

UNFPA, NextGen, Pledge4Girls Cloud and Mobile 'p3' System

United Nations Population Fund India (UNFPA) has partnered with NextGen, a CSR solutions company, to create Pledge4Girls.fund, a cloud- and mobile-enabled platform for corporates to channel their CSR funding for adolescent girls.

Abhishek Humbad, co-founder, NextGen, says, "Corporates and development agencies in India currently use the cloud- and mobile-driven 'p3' solution to monitor the progress and impact of their CSR projects in real time. Billions of dollars of development capital are spent annually across the world but their impact is poorly tracked and reported. Digital technologies like cloud and mobile will transform the development sector, not just in India but across the globe".

Image Credit:
Gram Vaani

CHAPTER 5

Funding Options

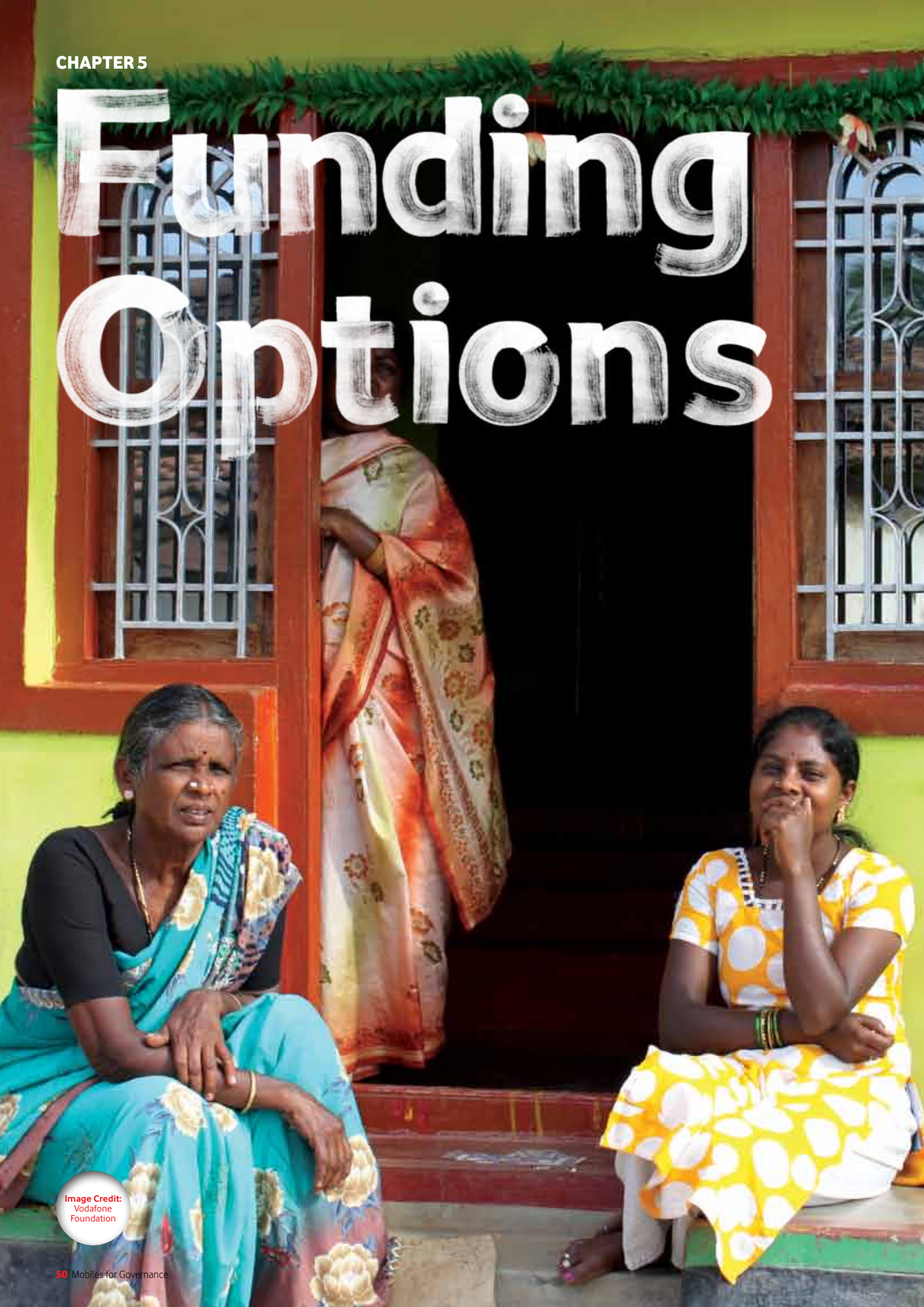


Image Credit: Vodafone Foundation

Dasra has identified the following high-potential non-profits that corporates and funders interested in this sector can engage with:

- **Association for Democratic Reforms**
- **Awaaz.De**
- **Digital Empowerment Foundation**
- **eGovernments Foundation**
- **Gram Vaani**
- **Janaagraha Centre for Citizenship and Democracy**
- **Social Cops**
- **Spatial Ideas**
- **Transparent Cities Network (TCN) at Citizen consumer and civic Action Group (CAG)**
- **Urban Management Centre (UMC)**
- **Women's Organization for Socio-Cultural Awareness**

Model: Non-Profit

Association for Democratic Reforms (ADR)

www.adrindia.org

Founded: 1999 | **Head office:** New Delhi | **Coverage:** Pan-India | **Full Time Staff:** 32
Budget (2013-14): Organization – INR 4.1 Crore; Mobiles for Governance – INR 50 Lakhs

Organization Overview

ADR was founded in 1999 by professors of IIM-Ahmedabad and Bangalore, who were concerned about the lack of information on candidates contesting elections. Since then, ADR has worked to create an informed citizenry, providing detailed analysis on the background of candidates and financial details of political parties. ADR's efforts are supported by a nationwide network of over 1200 organizations called the National Election Watch.

Gap in the Sector
Indians lack access to easily understandable information on the background of candidates contesting elections, which enables better voting decisions. This leads to large number of criminals in the parliament, increasing influence of money in elections and lack of transparency in political parties.

Mobile Enabled Response
ADR disseminates information on election candidates and political parties using mobile technology as one of the key mediums, hence resulting in cleaner elections with stronger candidates and more accountable political parties. This ensures better governance through implementation of good developmental policies.

How did it evolve?

1999 – Public Interest Litigation (PIL) filed in Delhi High Court, asking for background disclosure of all state and national candidates contesting elections

2002 – Based on the PIL, Supreme Court made criminal, financial and educational background disclosure to Election Commission mandatory for all contesting candidates

2002 – First Election Watch on Gujarat Assembly Elections conducted, whereby detailed analysis of election candidates was provided to the electorate

2008 – Political Party Watch program started to analyze finances and the functioning of 41 political parties

2014 – "Mera Vote Mera Desh," largest campaign launched on electoral information and reforms, before 2014 national elections

What does it do?

ADR has been using technology for greater dissemination of their research on the background of electoral candidates and the work of political parties to influence public opinion around electoral and political reforms. The tools that it uses for this dissemination are:

- **Messaging:** This service enables citizens to access information on criminal records, assets, liabilities and education qualification of their contesting candidates and elected legislators by specifying their constituency name or pin code. It uses "push" and "pull" SMS technology to send background information on election candidates and details on parliamentarians and state legislators. ADR has a subscriber base of 25 lakh people in the country.
- **Myneta Disseminator:** The android mobile application provides easily accessible information on national and state election candidates' background and criminal details. Furthermore, ADR has been successful in creating another android application called the Election Watch reporter to help people report cases of electoral malpractice.
- **Social Media and Website:** ADR uses new media channels to engage with people. As of May 2014, it has active followers on twitter (5,150), facebook (46,627) and google groups (18,000). Its websites have had over 10 million views till date.
- **Helpline:** The organization operates a toll free helpline number 1800-110-440 that answers questions from states going to polls on candidates based on the affidavits filed by them.

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What has it achieved?

- In August 2012, ADR won the mBillionth Award South Asia for the category of 'Mobile Innovations for Good Governance' featuring its pull sms program that allows every mobile user in the country to get information (criminal, financial and educational details) about his or her MP and MLA by typing a simple SMS on the phone
- As testament to ADR's strong dissemination strategy, in the 2014 elections, ADR got 30,000 requests per day to access information on contesting candidates through the "pull" messaging service. Additionally, it sent 20 different awareness messages reaching out to 20,000-1,00,000 people daily through its "push" SMS campaign
- Google election hub during the 2014 national Lok Sabha elections used ADR's data for voter education

What next?

The widespread penetration of mobile technology ensures large scale outreach to disseminate authentic, unbiased information on election candidates in time to enable informed voting. This will strengthen the citizen voice to ensure a stronger democracy with capable legislators. In the next few years, ADR will focus on

- Increasing usage of automated calls: ADR will use celebrity voice-over for information dissemination. This is based on the success of the voice messaging from Aamir Khan during the Lok Sabha campaign
- Building capacity of partners to manage the helpline: A toll free helpline for information on election candidates is mapped to the office of ADR's different partners. ADR will build partners' skills for effective use
- Effective use of SMS to disseminate information to the large number of offline citizens to generate awareness

They Help Voters Make a Better Choice

"There are two extraordinary things about ADR: that they are a collective, they are low key. It's not one charismatic individual as is often the case with most NGOs capturing the whole space... the second... reforms advocated by ADR can make our democracy even more optimal... They are a long term thinking organization, extremely creative, constructive ideas on how to reform Indian democracy. They are not a one shot phenomenon, they are long distance runners."

- Ramchandra Guha, eminent historian and author

Quality Indicators

Leadership

- Trilochan Sastry, professor at IIM Ahmedabad and Bangalore, and Jagdeep Chhokar, former professor and Director-in-charge of IIM Ahmedabad, and Ajit Ranade, Chief Economist, Aditya Birla Group were amongst the founders of ADR
- Maj. Gen. Anil Verma (Retd.) – ADR Head; previously served in the Indian army for 37 years

Partnerships

- Funders: Omidyar Network, Ford Foundation, Hivos
- Partnered with Facebook to provide information on mobiles for free (Dial *325*35#) as part of the "Know your Neta" initiative

Endorsements

- In December 2011, ADR won the NASSCOM award for "ICT led Innovation by multi-stakeholder partnership" for its Election Watch Software with Webrosoft
- ADR won NDTV's 'Indian of the Year – India's Future' award in the public sector category in April 2014

"Governance is too important to be left to the Government. The people of this great country have to be involved in governance on a much more regular basis and that is my appeal to everybody. Changes in voter behavior are perhaps the best guarantee for de-criminalization and good governance."

-Prof Trilochan Sastry, Founder and Trustee, ADR

Model: Social Business

Awaaz.De

www.awaaz.de

Founded: 2010 | **Head office:** Ahmedabad | **Coverage:** Pan-India | **Full Time Staff:** 14
Revenue (2013-14): Organization – INR 60 Lakhs; Mobiles for Governance – INR 45 Lakhs

Organization Overview

Awaaz.De literally means "give voice." Its mission is to bridge the communication gap in the development sector. Awaaz.De's first application in the domain of voice-based technology helped farmers and agricultural organizations to disseminate and receive information through voice. The technology has applications even in the sectors of health, education, women empowerment and labor welfare.

Gap in the Sector
A significant proportion of the population in rural areas lack access to information, critical for their development across sectors such as agriculture, health, education and finance. Moreover, due to the digital divide in India, internet is not the most effective platform for information dissemination.

Mobile Enabled Response
Awaaz.De provides mobile voice-based social platforms to make information services useful to rural people; the content is localized in its topic and language, it overcomes literacy barriers and works with the most low-end simple mobile phone. Information shared on the forum by informed locals benefits the community.

How did it evolve?

2010
Awaaz.De was founded out of Neil Patel's Ph.D research at Stanford's Department of Computer Science

2010
Built Avaaj Otalo (AO), a mobile phone-based technology that allows farmers to call a hotline, ask questions, and receive responses from agricultural scientists and local extension workers

2012
Researchers at Harvard Business School studied the impact of Awaaz.De on 1200 farmers in Gujarat that showed amongst other highlights, an increase in adoption of effective pesticides

2012
Developed Streams, a low cost standardized product analogous to Voice Twitter: people can create a voice message group, get members to join the group and invite comments

2010-2014
Worked to make the product cheaper, faster and easier to use; only customized products for larger clients

What does it do?

Awaaz.De provides voice-based applications platform for social messaging to non-profits and other private players to reach people that lack access to information. The messages share information across a range of issues such as agricultural advice, health information, and banking services. Currently, amongst Awaaz.De's clients, 10 percent of the clients use the service to directly strengthen local governance. These clients include Ahmedabad Municipal Corporation, Centre for Environmental Planning and Technology University (CEPT) and Mumbai Votes. Further, 70 percent of the social messages disseminated provide relevant information about public services on issues like health and livelihoods.

There is no fixed charge to joining the platform, and users are charged based on the actual airtime. Since majority of the users are from low-income communities, the organization broadcasting the message can subsidize the cost to end users. Some applications of Awaaz.De's products are as below:

- Monitoring implementation of NREGA, guaranteed wage employment in partnership with Stanford Liberation Technology. The voice messaging targeted at local activists brought about increased awareness and transparency in the implementation.
- Avaaj Otalo, provided in partnership with Development Support Center, is an information service for small farmers in Gujarat to access localized, timely agricultural advice in their native language on the mobile phone.

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What has it achieved?

- Since inception till November 2014, Awaaz.De has facilitated 4.2 million calls, reaching 411,000 people, with 65% repeat users. It has completed successfully 100 projects to enable social messaging in India
- Awaaz.De messages have been sent in 7 Indian languages and 5 international languages
- A randomized evaluation of the introduction of the mobile-phone based agricultural consulting service, "Avaaj Otalo (AO)" to cotton farmers in Gujarat, India, revealed that demand for agricultural advice is high, with more than half of farmers calling AO in the first seven months. Farmers offered the service turn less often to other farmers and input sellers for agricultural advice

What next?

Mobile penetration is high, but the use of internet on mobiles for information is low. As of 2012, 38 million people in rural India actively use the internet, of 330 million internet users in India. Awaaz.De provides an alternative solution using voice technology to disseminate and receive information.

In the next three years, Awaaz.De will reach out to 10 million users. It will also invest in smart phones playing an increasing role in how they deliver their services. Awaaz.De will focus on ensuring good content on the forum and selling the low cost social messaging service to private players such as corporate foundations. The organization reached its break-even point in 2012-13, and will now work towards being profitable while adhering to its core mission.

They Help Voters Make a Better Choice

"Due to fluctuations in weather and crop conditions, farmers need timely, regular, region-specific and scientific advice for their crops. While traditional agricultural extension may often be unavailable at the specific time of their need, farmers across Gujarat are able to access customized agricultural advice 24 hours a day, 365 days a week using Awaaz. De's mobile-phone based service. They are also not restricted by the information they receive centrally; Awaaz.De's systems allow for mobile-phone social networking by allowing farmers to directly share information with other farmers. This innovative technology, along with increased mobile phone penetration, is reducing barriers to information access and has potential to bring about inclusive development for rural populations.

- Niharika Singh, Research Associate at IFMR

Quality Indicators

Leadership
- Neil Patel and Tapan Parikh, co-founders
- Both Neil and Tapan have a combined 15 years of experience designing and deploying knowledge sharing systems

Partnerships
- Incubated under CIIE at IIM-Ahmedabad
- CSR Partnerships, such as with Ambuja Cement Foundation to run "Krishi Mobile," which provides support and information to farmers in Gujarat
- Stanford's Liberation Technology program facilitated local Indian organizations to use Awaaz.De technology to broadcast information on NREGA (guaranteed employment) program

Endorsements
- Satyamev Jayate, show on Indian television, spotlight Awaaz.De for its episode on Government Transparency
- Sankalp Artha Grand Prize 2013

"The idea was to make technology work for people disconnected from the Internet, the underserved population, people in rural areas and people who are marginalized. Our customers were different organizations who either wanted to use the voice medium to disseminate information or collect information from the rural population. This product was simple to set up and easy to use and served the purpose for most organizations we were catering to"

- Neil Patel, co-founder

Model: Non-Profit

Digital Empowerment Foundation (DEF)

www.defindia.org

Founded: 2002 | **Head office:** New Delhi | **Coverage:** Pan-India, Asia Pacific and Africa | **Full Time Staff:** 105
Budget (2013-14): Organization – INR 9 Crore; Mobiles for Governance – INR 4.9 Crore

Organization Overview

DEF works to bridge the digital divide, the inequality existing due access to, use of and knowledge of information and communication technology (ICT). Its approach is three-pronged: (a) ensuring access to internet for all people, (b) spreading digital literacy, empowering communities with ICT tools and (c) advocacy to build a knowledge society. DEF has reached 22 states in India and 8 other countries.

Gap in the Sector
People in India lack access to information to exercise their rights, which then perpetuates poverty. This lack of information is a result of the digital divide, since India has poor internet infrastructure and low levels of digital literacy.

Mobile Enabled Response
DEF addresses the communication gap by building an ecosystem for effective use of mobile technology. It conducts research on best practices in the sector, generates awareness in rural areas and advocates for policy changes in India

How did it evolve?

2002
Founded with the vision to find sustainable ICT solutions to address the digital divide in under-served and unreached regions

2005
Launched Manthan Award to recognize ICT for development projects; expanded in 2010 to curate mBillionth award that recognizes mobile best practices in South Asia across 11 categories

2009
Digital Literacy Mission project launched: 40 hour training program that has taught over 1,500,000 participants to operate computers, type and use Microsoft office

2011
Supported Barefoot College to establish community radio station

2012-2013
Participated in the working group on Internet Governance, set up by the Ministry of Communications

What does it do?

DEF implements the programs below to promote the use of mobile technology for better governance, amongst its other projects:

- Research: (1) Digital Knowledge Center acts as a one-stop database for best ICT practices, which includes the use of mobile technology for governance. By creating an open forum of 150-200 audio-visual best practices, DEF promotes replication, funding and partnerships in the sector. (2) Mobiles for Social and Behavior Change (MSBC) documents case studies that empower frontline government health workers and teachers to use mobile technology. To disseminate this information, DEF facilitates national and state level policy consultations inviting government and non-profit representation.

- Awards: DEF curates Mobile for Good, Manthan and mBillionth awards that recognize innovative digital practices, including those using mobile technology for better governance. 3-4 winners selected from the Mobiles for Good applications receive incubation support and funding for scaling their program.

- Soochna Seva: Launched in early 2014, this program aims to facilitate the delivery of public scheme information to enable entitlement gains for communities and strengthen citizen capacity to work with the local administration. DEF employs community mobilization tactics like street plays combined with information technology such as projector vans, community radios and mobile technology for awareness generation.

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What has it achieved?

- Through its work, DEF has reached more than 1 lakh direct beneficiaries and 3 lakh indirect beneficiaries
- Soochna Seva program is being implemented in 5 backward districts, affecting 20,000 households
- DEF has awarded more than 200 mGovernance projects, spreading the knowledge on best practices in India
- MSBC has hosted a national consultation and 5 state consultation to disseminate knowledge about the best practices on using mobile technology for social change
- DEF is a member of Multi-stakeholder Advisory Group (MAG) for India-Internet Governance Forum that discusses key issues related to internet that sets out the international forum's mandate

What next?

The m-Governance framework under National e-Governance Plan launched in 2012 intends to introduce provision for access to all public services through mobiles. DEF will work to complement this initiative through the following:

- Soochna Seva will be impact 1.2 million people until 2018, and will incorporate mobile technology to a large extent as a tool for awareness generation to enable people to access government entitlements at the right time. This project will engage 244 fellows from colleges like the IIMs, to create on ground change.
- MSBC program will engage with government and non-profits at the regional level to understand, address and scale up interventions that use mobile technology effectively
- Set up community information resources centers in every district that provide access to e-government services

Where mobile barriers break

In a country like India that is already grappling with economic disparities, digital divide will further widen the gap between the haves and the have-nots. While the economic disparities need complex solution, the same is not the case with digital disparities. It's all about making better use of the existing technology and applying it in ways that empower the people. It's an initiative started by the Delhi based non-profit organisation Digital Empowerment Foundation (DEF).

- Priyanka Tilve, Firstpost

Quality Indicators

Leadership

- Osama Manzar is the founder and director of DEF
- He has been a British Chevening Fellow in 2002 and was invited by the US State Department for the "International Visitors Leadership Program" in 2011
- He is a member of the Working Group "Internet Proliferation and Governance," Ministry of Communications and IT

Partnerships

- Osama is the Chairman of the Manthan Award South Asia for "Digital Inclusion for Development"
- DEF has network relationships with World Summit Award, Internet Governance Forum, Association for Progressive Communications (APC)
- National Digital Literacy Mission launched in partnership with NASSCOMM, Intel and the IT department of the government in 2012
- Conducts workshops to train 200,000 women on digital literacy by 2015 in partnership with Google

"Imagine if all the 1.8 million anganwadi health workers are equipped with digital tools like mobile phones to impact social and behavioral changes in rural India among mothers, children and adolescent girls. In the coming days, it will be interesting to see how mobile as a new media tool of journalism can turn into the most democratic tool of information equality for those who are illiterate, uneducated and speak languages understood by no one else."

- Osama Manzar, founder and director, DEF

Model: Non-Profit

eGovernments Foundation (eGov)

www.egovernments.org

Founded: 2003 | **Head office:** Bengaluru | **Coverage:** Pan-India | **Full Time Staff:** 42
Budget (2013-14): Organization – INR 3.95 Crore; Mobiles for Governance – INR 88 Lakhs

Organization Overview

eGovernments Foundation is an information technology solutions provider in the e-governance sector. The organization was founded with the mission of improving the functioning of urban administration, thereby leading to efficient delivery of services to its stakeholders. The organization's software solutions are currently deployed across 275 municipalities across India.

Gap in the Sector
Municipalities are not in a position to meet the aspirations of their citizens due to weak institutional capacities. This contributes to the inefficient delivery of public services, depriving citizens of their rights and entitlements.

Mobile Enabled Response
By leveraging technology, data and government process reengineering, eGovernments Foundation empowers municipalities to improve their internal processes and systems which enhances their capacity to deliver efficient, transparent and reliable services to all their stakeholders (citizens, businesses and employees).

How did it evolve?

2003
First project entailed the creation of an integrated online property tax system for the Bruhat Bengaluru Mahanagara Palike

2004
Partnered with Urban Development Department, Government of Karnataka and The World Bank to roll out e-governance solutions across 57 municipalities in Karnataka

2008
Won tenders outside Karnataka for implementation of integrated Municipal eGovernance systems in Chennai and Kanpur

2014
Nagpur Municipal Corporation adopts eGov's mobile technology based property tax management system

What does it do?

eGovernments Foundation's software solutions and systems are built around a platform that includes components such as collections, financial accounting and budgeting, employee information and master data management. Its product offerings include:

Expenditure Management: Assists the government in the development and implementation of its spending plans. Modules include public works, asset, payroll, pension and inventory management systems.
Administrative Efficiency: Enables efficient management of back office operations. Modules include employee, file and legal case management systems.
Citizen Convenience: Helps citizens efficiently interface with the government. Modules include public grievance redressal, birth-death registration and building plan approval management systems.
Revenue Management: Assists the government to raise and collect taxes. Modules include property tax, trade license and land-estate management systems.

eGovernments Foundation's products are given free of cost to municipalities. It competes for government software tenders, charging municipalities for the customization, support and integration of its generic product offerings with their existing systems. Municipalities have the option to choose various combinations of modules.

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What has it achieved?

eGov measures the impact of its work in terms of efficiency gains realized by citizens and municipal employees

- As waiting time for the issuance of birth and death certificates has reduced from 4-5 days to less than 1 day, the 47 lakh certificates issued through eGov created systems have resulted in 948 man years saved for citizens and 406 man years saved for government officials.
- Property tax systems created by eGov have resulted in the collection of over INR 3800 crore in property taxes by bringing over 40% of un-assessed properties into the tax net.
- eGov grievance redressal systems have enabled the registration of over 22 lakh citizen complaints.

What next?

In the immediate future, eGov will build on its emerging work in mobile for governance, by adding mobile capabilities to its software solutions. This will enhance municipal employees' capacity to complete tasks in the field and make quicker decisions based on access to real-time information updates. Over the coming years, eGov will focus on new product features such as:

- Open source software solutions to bring in best practices.
- Creating a dashboard/network operating center feature which will enable municipal officials to make data driven decisions in a proactive and efficient manner.
- Enabling software as a service leading to increased customization, adoption and affordability.

"eGovernments' property tax solution has improved the efficiency and effectiveness of the tax department and has resulted in bills being dispatched in a timely fashion in addition to improved collections."

- Commissioner, Direct Taxes, New Delhi Municipal Corporation

"Through your public grievance redressal system, I filled a complaint for the non-burning of street lights. The junior engineer from the ward called to ask for the exact location after which the problem was immediately addressed. This people centric application is something that we can all be proud of."

- A citizen of Chennai

Quality Indicators

Leadership

Co-founded by Nandan Nilekani and Srikanth Nadhamuni

- Mr. Nilekani was CEO, Infosys & served as Chairman of the Unique Identification Authority of India (UIDAI)
- Mr. Nadhamuni is co-founder & CEO of Khosla Labs
  Currently led by Nat Malupillai
- 2 decades of Management Consulting, IT & Analytics experience at firms such as Target and Deloitte

Endorsements

- Quality certified by the Department of Electronics and Information Technology, for the provision of e-governance services to municipalities
- Security certification provided by the India Computer Emergency Response Team (CERT-IN)
- Legacy funders include Google Inc.

Partnerships

- Partnered with the Centre for Good Governance for the implementation of e-governance solutions across municipalities in Andhra Pradesh

"Having a background in technology, I saw how it could be leveraged to streamline large scale systems. I saw that the angst that people went through in their day-to-day lives was related to poor local governance in their city or village. This led Nandan Nilekani and I to create the eGovernments Foundation - to focus on improving city governance by creating scalable and replicable Municipal eGovernance solutions across all departments and activities of the urban local bodies."

– Srikanth Nadhamuni, Co-founder & Managing Trustee

Model: Social Business

Gram Vaani

www.gramvaani.org

Founded: 2009 | **Head office:** New Delhi | Coverage: Pan-India | **Full Time Staff:** 32
Revenue (2013-14): Organization – INR 1 Crore; Mobiles for Governance – INR 1 Crore

Organization Overview

Gram Vaani develops technology-based media platforms to share information relevant for the development of populations that are the hardest to reach. It has partnered with 90 organizations to deploy its voice-based technologies, reaching over 2 million users in 15 states in India and 7 countries. It supports 40 community radio stations, and runs a mobile-based voice platform, Mobile Vaani, with 500,000 users in Jharkhand and Bihar.

Gap in the Sector
Many people lack information on opportunities for development due to gaps in the communication infrastructure. There is a large user base in rural India not on the internet; currently India has only 150 million internet users. The rest lack information and common platforms for citizen voices to be heard.

Mobile Enabled Response
Gram Vaani provides a voice-based media platform for those lacking internet access. Using a phone call, individuals who are illiterate or offline, share local experiences and voice their concerns. This acts as a forum that empowers citizens, and enables increased transparency in delivery of government services.

How did it evolve?

2009
Developed technology to support 40 existing community radio stations; but this model was dependent on different local agendas and lacked financial sustainability

2010
Built an interactive voice platform (IVR) to leverage widespread mobile penetration

2011
Conducted a pilot in Jharkhand for community to record or listen to messages on mobiles, acting as discussion forums and enabling grievance reporting

2012
Developed Mobile Vaani platform and built competency in journalism to curate content. Hence, it evolved to become a media house using technology, from only providing technology

2013-2014
Scaled Mobile Vaani to reach over 500,000 users in Jharkhand and Bihar; shall be expanding to two more states

What does it do?

Mobile Vaani provides a platform to its clients, generally development organizations, which enable rural populations to access a radio platform on their mobiles free of cost, using an Interactive Voice Response (IVR) system. Individuals can record their comments and listen to local content, primarily generated by other users. This voice-based social media platform serves various purposes such as knowledge sharing and discussion forums, social campaigns that enable collection of data, and awareness generation on social issues.

By working with partners, Gram Vaani earns revenue and is able to achieve increased citizen outreach and impact through the following:

- It trains NGOs with local presence to develop citizen journalists who use the Mobile Vaani platform to mobilize communities
- It provides partners with data generated through targeted social campaigns, which can be used for advocacy at a national level

Some of the content generated on Mobile Vaani is utilized in the following manner to achieve impact offline:

- Dissemination through mass media: Prabhat Khabar, a local paper with a daily circulation of 8 lakhs, dedicates one page per week to Mobile Vaani content
- Advocacy through volunteers: Over 150 volunteers engaged through partner NGOs and local clubs follow up on issues with local officials, who are more responsive due to the transparency created by media and fear of escalation
- Direct tie-ups with government officials to respond to grievances

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What has it achieved?

- Independent media: Its success is reflected in the number of users and level of participation; Mobile Vaani gets over 6,000 calls per day, of which 3% involve individuals recording content; it has over 500,000 unique users.
- Grievance redressal: Volunteer action or direct government tie-ups have led to a response on over 50 cases, including cases of corruption around MNREGA job-card issuance, illegal mining, water availability, etc.
- Social audits: A two month health campaign led to responses by 400+ people on the status of public health facilities; findings were shared by several newspapers and TV channels, led to testimonials on 5 improved health facilities, impacting over 100,000 people; similar surveys done on education facilities, MNREGA works.

What next?

According to most optimistic estimates, by the end of 2017, India will have 300 million internet users on mobile phones. This leaves out more than 400 million people without internet access. Voice applications provide a solution to this problem. It can engage with these communities in spite of their lack of access to the internet, poor literacy to use text based communication or an inability to afford smart phones.

In the next few years, Gram Vaani would like to continue scaling its Mobile Vaani platform through:

- Expansion to new geographies; it recently began operations in Madhya Pradesh and Odisha
- New partnerships with non-profits that can use its platform to mobilize their communities
- New social campaigns on issues such as illegal mining in Jharkhand, to expand the uses of Mobile Vaani

"A lot of recordings were published on Jharkhand Mobile Vaani that shared the details of illicit land dealing and the involvement of senior officials and the Block Development Officer. After taking the matter forward, the district administration has suspended the Block Development Officer and other officers involved in the land scam. This quick revert of the government is thanks to the recordings that were run on Jharkhand Mobile Vaani."

- Sanjay Soren, from Domchach, Jharkhand (April, 2014)

Quality Indicators

Leadership

- Aaditeshwar Seth is the co-founder and CEO
- Faculty at IIT Delhi, alumnus of IIT Kanpur and has a PhD from University of Waterloo (Canada)

Partnerships

- Incubated at IIT Delhi
- Investors: Digital News Ventures, India Angel Network
- NGOs/Agencies: Oxfam, CREA, Breakthrough, CEDPA,
- Government: Health and Labour Departments in Jharkhand, Municipal Corporation of Delhi
- Other Supporters: Knight Foundation, Grand Challenges Canada, the Ford Foundation, Rockefeller Foundation

Endorsements

- Economic Times rated Gram Vaani among the 14 startups to watch in 2014
- mBillionth South Asia Award in 2012 and 2013
- Economic Times Power of Ideas 2010
- Manthan Award 2009

"Initially, our growth was constrained because we were only a technology provider and it was difficult to scale through scattered NGOs. So with Mobile Vaani, we evolved into a media company that runs its own network, which is enriched by partnerships but doesn't depend on them. Now, as a media company, our biggest challenge is funding: you need to first invest in scaling and building a user base, and financial sustainability through sponsorships only comes after."

– Aaditeshwar Seth, Co-founder and CEO

Model: Non-Profit

Janaagraha Centre for Citizenship and Democracy

www.janaagraha.org

Founded: 2001 | **Head office:** Bangalore | **Coverage:** Pan-India | **Full Time Staff:** 175
Budget (2013-14): Organization – INR 21.9 Crore; Mobiles for Governance: INR 4.5 Crore

Organization Overview

Janaagraha works with citizens and the government to catalyze systemic change in urban India. Focusing on developing the quality of urban infrastructure and services, and the quality of citizenship, its work ranges across civic education in schools, raising citizen participation in governance, and ensuring transparency and accountability in government systems. While based in Bangalore, it has scaled programs to cover all of India.

Gap in the Sector
Urban India faces several unheralded issues ranging from patchy or broken infrastructure to corruption in government systems. Further, the approach taken to improving our cities tends to be reactive, focused on the short-term, and places little or no importance on citizen voice.

Mobile Enabled Response
Janaagraha creates platforms for citizen engagement and works with the government from the local to the national level, on systemic and institutional reforms. The organization has leveraged online and mobile platforms to enable citizen reporting and action on issues of corruption and city development.

How did it evolve?

2001 – Started with a single campaign on participatory budgeting in public works in Bangalore

2005 – Its advocacy was crucial to the establishment of the largest urban initiative in India's history, the JNNURM

2007 – Undertook the nationwide Jaago Re! Campaign with Tata, aimed at registering urban youth as voters

2010 – Established an online platform ('I paid a Bribe') to encourage citizen participation to foster accountability – origin of its strong online presence

2013 – Analyzed its past successes, and formulated a streamlined 'city-systems' framework to strategically approach urban issues in India

What does it do?

Janaagraha has two flagship programs that make use of mobile technology to catalyze good governance in India:

1) I Change My City (ICMyC): Presently operating in Bangalore, this program works towards (i) empowering citizens to change their neighbourhoods through active participation and (ii) making governments more accessible to their constituencies. ICMyC serves as an e-database of information on civic issues and a portal for citizens to lodge complaints and seek redressal under the purview of local authorities. Over 14,000 complaints (eg. potholes, unattended garbage) have been posted on the online portal of which 5,306 have been resolved through linkages with local municipal bodies. To improve the reporting process with easier photo uploads and location data, Janaagraha launched the ICMyC mobile application in 2014, which has already been downloaded by 7,000+ users.

2) I Paid a Bribe (IPaB) is a platform developed by Janaagraha to use citizen voice to tackle transactional or retail corruption in government systems. A web portal, mobile application and an 'iBribe hotline' (IVR system) are the mediums available for citizens to report cases of bribes paid, bribes resisted and honest officers met. Reports of the officer involved and the amount of the bribe is then shared with the relevant department (such as police, passport office, power supply, etc) to take necessary action. With platforms available in Hindi and English, bribes worth INR 237 Crores have been reported through 31,000+ reports pan India.

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What has it achieved?

- In order to provide citizens with a nodal touch point in the local government as a part of I Change My City, Janaagraha has established strong partnerships with local municipal bodies in Bangalore, such as Bangalore Electrical Supply Company, Bangalore Metropolitan Transport Corporation, and Sewage Supply Board among others.
- The ICMyC platform has been upgraded to make use of 'Geolocation' and contextualize hyper-local data according to a user's neighbourhood, while presenting information in maps or dashboards.
- The I Paid a Bribe mobile application has been made compatible with 5 mobile operating systems, and made available in Hindi, thereby significantly extending the access and use of the platform.

What next?

- There has been significant interest from Janaagraha's international partners in replicating ICMyC and IPaB in their respective countries. For the same, the team wishes to create a 'Software as a Service (SaaS)' version of the mobile applications, which can be shared with foreign partners in a customizable format over the web.
- While ICMyC is presently operational only in Bangalore, Janaagraha's immediate target is to expand this platform to two other cities by 2016. Groundwork for the same has already begun in Delhi and Jaipur.
- Having already replicated IPaB across 10 countries through foreign partners, Janaagraha's vision for this program is to create a world-wide network of crowd-sourced IPaB web and mobile platforms, to harness the power of citizen voices and reduce retail corruption globally.

"For someone who doesn't know how the system works or the ministry functions, IChangeMyCity is a blessing in disguise. It did its job of carrying my message to the recipient effectively"

- L. S. Ram (Bangalore, India)

L.S. Ram is the executive director of a private firm and a citizen of Bangalore. He was distressed that a wall belonging to All India Radio was causing traffic obstruction and severe problems for school children crossing the road. Ram used ICMyC as a part of his multi-pronged approach and was eventually able to have the wall removed.

Quality Indicators

Leadership

The organization was founded by Ramesh and Swati Ramanathan.

- Ramesh Ramanathan served as the national technical advisor for the JNNURM
- Swati Ramanathan has received the Rajyotsava Puraskar – Rajasthan's highest civilian award – for the Jaipur 2025 plan developed by her

Partnerships:

- Individual Donors: N.R. Narayana Murthy, Sridar Iyengar
- Corporate Donors: Tata Group, HSBC, Infosys, Google (in-kind technology support)
- Institutional Donors: Omidyar Network, Edelgive
- Partnership with Brown University for research on developing a Citizen Engagement Index

Endorsements

- I Change my City won the Global Impact Award at the Google Impact Challenge (2013-2014)
- I Paid a Bribe campaign received 'Best Activist Theme' at the Honesty Oscars 2014

"India's cities are in a mess. The challenges are too deep and systemic to take tactical stabs at fixing them. Lack of clear leadership, and a mishmash of institutions with fragmented mandates add to the already mammoth problem. Janaagraha wants to engage with leaders to help them diagnose urban challenges through the lens of a "City-Systems framework" and develop a customized transformational strategy and execution plan for their city, to improve the quality of life."

– Ramesh and Swati Ramanathan, Co-founders.

Model: Social Business

Social Cops
www.socialcops.org

Founded: 2012 | **Head office:** Delhi | **Coverage:** Pan-India | Full Time Staff: 10
Budget (2013-14): Organization – NA; Mobiles for Governance – NA

Organization Overview

Social Cops is a technology company that operates with a vision to "power the world's decisions through data from the grassroots". The organization leverages mobile and software infrastructure to track and monitor data on a real time basis in remote parts of India. By doing so, the organization derives insights that enable governments, corporates and non-profits to make data-driven decisions.

Gap in the Sector
Significant government decisions, including national level policies, are made on the basis of little or no insights of the ground realities. Data collection methods adopted by the government, NGOs and corporates only consider small samples and provide only static information.

Mobile Enabled Response
Social Cops uses mobile-based crowdsourcing and surveys for the real-time tracking of important parameters such as quality of public infrastructure and teacher attendance in public schools, to enable informed decision-making by governments, non-profits and civil society.

How did it evolve?

2012
Idea of Social Cops was put into action. Organization launched its first online crowd funding campaign. The team undertook on-ground research

2013
Founding team took part in several business plan competitions to raise funds and find advisors. Organization set up an office in Delhi and initiated first project on cleanliness of streets.

2014
Entered into partnerships with eight civil society organizations to provide them with tools for mobile-based data collection. Began engaging more closely with government departments such as Delhi Police.

What does it do?

Social Cops puts mobile technology at the core of its offerings. It uses the following approaches for real-time data collection:

Crowdsourcing: Social Cops has developed its own mobile application, with the objective of creating a platform for citizens to provide regular feedback about the public infrastructure of their city, thereby contributing first-hand data on the problems and required action. Social Cops has used the application for a number of projects including a Road Infrastructure project in Delhi and a project focused on broken street lights in Ranchi. Through efforts on the latter, more than 2,000 street lights were installed in the darkest and most vulnerable streets in the city - as identified by the citizens.

The organization also uses voice and SMS to empower people with important information about topics such as preventive healthcare, and crowd-sources data through 'dial-an-answer' surveys.

Surveying: Social Cops has empowered 8 non-profit organizations in India with the necessary mobile and software tools to monitor untracked indicators with the use of low-cost smartphones. Through this initiative, Social Cops facilitates the surveying of 1.2 million individuals to collect significant real-time data on parameters such as teacher attendance and school infrastructure.

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What has it achieved?

- Social Cops has been able to actively engage both, the corporate and non-profit sector, in projects on the issues of road infrastructure, public worker incentives, and delivery of public welfare schemes among others, while quickly growing its reach to 7 states of India.
- The organization has established the necessary infrastructure to grow their multi-prong approach of data collection, by developing an android application for crowd sourcing data, a survey tool with a question bank, an Interactive Voice Response system to directly engage with communities, and a data station for managing data.

What next?

- Social Cops shall focus on government entities as the long term benefactor of the initiative. They have already partnered with Centre for e-governance of Karnataka, and are in talks with the State Police department of Delhi.
- To rapidly increase the number of data points, Social Cops is partnering with a large number of non-profit organizations, to receive data from the latter's beneficiaries. They target to have touch-points with 50 million individuals by December 2015.
- Social Cops shall continue to innovate to build platforms that will leverage citizen-led information to build accountability and help decision makers in making large-scale data driven decisions.

"We are the garbage pickers... Nobody ever notices us, ma'am. I have been working here for 20 years and my son never knew what I do. Today, you have made my son proud of me. Thank you!"

– Mukesh, Safai Karamchari

Mukesh was the recipient of the "Best Karamchari of the Month" award – a project where Social Cops crowd-sourced citizen scores on street cleanliness. This project aimed to boost the morale and performance of these public workers, by identifying champions on the basis of bi-weekly citizen scores.

Quality Indicators

Leadership

- Co-founded by Varun Banka and Prukalpa Sankar. Varun and Prukalpa are 2013 graduates from Nanyang Technological University Singapore, in Computer Engineering and Chemical Engineering respectively.

Partnerships

- Has partnered with 8 non-profit organizations to empower them with tools for real-time tracking of monitoring data.
- Has established project partnerships with leading organizations such as Association for Democratic Reforms, Digital India Foundation, PVR Nest, I Lead India.

Endorsements

- Social Cops has been an awardee at reputed platforms including – World Youth Summit Award 2013 (by United Nations), Microsoft's Global Social Entrepreneurship Competition, and IBM Smart Planet Challenge among others.

"It is important for citizens to realize that their voice is a tangible data point that will aid better planning and resource allocation in the long run."

- Prukalpa Sankar, Co-founder

Model: Social Business

Spatial Ideas

www.spatialideas.com

Founded: 2010 | Head office: Mumbai | **Coverage:** Maharashtra | **Full Time Staff:** 5
Revenue (2013-14): Organization – INR 1.85 Crore; Mobiles for Governance – INR 1.85 Crore

Organization Overview

Spatial Ideas develops technology driven governance solutions for local and state governments which enable transparency, accountability, efficiency and the effective utilization of funds in the delivery of important public services including healthcare, food security, infrastructure and solid waste management. Its solutions are currently being used by one urban municipality and four district administrations in Maharashtra.

Gap in the Sector
Spatial Ideas found that government administrators are not equipped with access to real time information and data management solutions. This hinders effective decision making, driving up project costs and resulting in inefficient planning & delivery of public services.

Mobile Enabled Response
Spatial Ideas' develops software solutions that integrate mobile technology, Geographic Information System (GIS) and biometrics, providing government administrators with access to real time data which can be leveraged to better allocate limited resources and make well informed decisions concerning public service delivery.

How did it evolve?

2012
Met the Municipal Commissioner of Mira-Bhayandar Municipal Corporation (MBMC) and learnt about the difficulties faced in efficient administration of public services. Developed GIS based software that was built into the phones of 40 engineers at MBMC, enabling remote tracking of progress at infrastructure sites

2013
Expanded scope of partnership with MBMC, developing governance solutions for Solid Waste Management. Won additional tenders with urban and district administrations in Maharashtra

2014
Through their work with urban and district administrations, Spatial Ideas' solutions have directly benefited almost 4 lakh citizens

What does it do?

Spatial Ideas' develops customizable solutions which it hosts on Viking, a dynamic platform that converges technologies such as mobile applications, GIS, Analytics and biometrics. Its product offerings leverage a combination of these technologies along with data driven analytics and reporting to create governance solutions in the following core areas:

Infrastructure Management: Enables government officials to track progress at infrastructure sites and hold contractors accountable to time, quality, cost and performance of projects.
Solid Waste Management: Provides solutions to manage municipal waste related activities and assets, leading to increased staff accountability and improved problem resolution. A citizen grievance application is also available.
mSwaasth Health Management: Enables improved monitoring of patient management and staff attendance as well as tracking of medicine distribution and consumption at Primary Health Centers. Health workers are equipped to track maternal & child health and administer community health surveys.
Public Distribution System (PDS): Allows the government to plug PDS leakages, ensuring that rations reach the intended beneficiaries.

Spatial Ideas competes for government tenders and offers its product offerings at a one-time cost along with an annual maintenance contract (~annual value of 20% of total cost).

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What has it achieved?

Spatial Ideas' enables government administrators to save costs and deliver public services more efficiently.

- In the PDS pilot, 27,000 families gained access to government rations in a hassle-free manner and each Fair Price Shop (FPS) recorded monthly savings of ~INR 2 lakh. The PDS solution is currently active in 140 FPS and has triggered a demand for statewide biometric based food security solutions.
- Since adopting the Solid Waste Management solution, Mira-Bhayandar Municipal Corporation has recorded an increase in employee attendance by 25% as well as annual savings to the tune of INR 4 crore.
- 1.5 lakh people have availed improved primary health services through mSwaasth Health Management.

What next?

Spatial Ideas plans to expand the scope of its operations to enable government to successfully scale and execute public service delivery. This includes:

- **Expanding to new geographies:** offering governance solutions to 150 districts across 3 states in India over the next year, reaching 7.5-10 crore Indians.
- **Building internal capacity:** Hiring team members for product & business development and client servicing.
- **Developing new product offerings:** Tools for employee accountability, citizen grievance tracking and tourism applications for heritage sites.
- **Raising investment capital:** INR 5 crore in 2014-15 to generate revenues of INR 50 crore.

"Thanks to the software, I can sit in my office and monitor how many Primary Health Centers are active, how many patients have been checked, how many beds are occupied and whether doctors are present for the hours they are paid for."

Vikram Kumar, District Collector, Aurangabad

"We were able to save 40% of the grains that would earlier have been lost to the black market."

Deependra Kushwah, District Collector, Sangli

Quality Indicators

Leadership

Vishal Agarwal founded and leads Spatial Ideas

- Postgraduate in Electrical Engineering from Pennsylvania State University
- Ten years of professional experience at Environmental Systems Research Institute (esri), Rolta and Cognizant

Endorsements

- Awarded Sankalp-Artha Grand Prize in 2014
- Awarded South West Manthan Award in 2014
- Awarded Best Smart City Initiative in eMaharashtra Awards 2013

Partnerships

Spatial Ideas' clients include

- Mira-Bhayandar & Nagpur Municipal Corporation
- District administrations of Aurangabad, Nanded and Sangli
- Ekal Vidyalaya Foundation

"I firmly believe the most effective way to truly transform the lives of the people at the bottom of the pyramid is to work with the government to ensure success of poverty alleviation and economic development programs. This can only be achieved by providing world class technology to the government employees on the ground and intuitive actionable analytics to the decision makers"

Vishal Agarwal, Founder, Spatial Ideas

Model: Non-Profit

Transparent Cities Network (TCN) at Citizen consumer and civic Action Group (CAG)

www.cag.org.in

Founded: 2014 | **Head office:** Chennai | **Coverage:** Chennai | Full Time Staff: 7
TCN/CAG Program Budget (2014-15): INR 22 Lakh; CDP Project Budget: INR 51 Lakh

Organization Overview

The Chennai Data Portal and Dashboard (CDP) initiative was established as part of an MOU between the Corporation of Chennai (CoC) and Transparent Chennai (TC), Institute for Financial Management and Research (IFMR) to collaborate to create India's first city-level data portal. TCN has been established by the team that created the TC project at IFMR. CDP draws on TCN's understanding of urban governance, particularly in contexts of high informality. It uses robust methodologies for data collection, spatial and non-spatial analysis and research to support the city government's ability to create information that can improve planning and monitoring of civic services.

Gap in the Sector
Data about existing civic amenities is often inaccurate or incomplete, preventing government officials from making effective decisions about planning and monitoring the delivery of civic services. The lack of accessible and accurate data also prevents citizens from holding governments accountable.

Mobile Enabled Response
CDP leverages mobiles to collect data and other technology to create datasets and interactive maps which highlight the gaps in provision and maintenance of civic services. It works with CoC departments to improve their capacity to use this data for planning and monitoring of municipal infrastructure and services.

How did it evolve?

2003
TC (IFMR) supported CoC to use mobile phone enabled surveys to identify 348 feasible locations to install 2000 pre-fabricated public toilets

2004
Signed a two-year MoU to create an Open Data Portal for Chennai and Dashboard for CoC, with the goals to comprehensively improve data management practices and to embed capacity in CoC to be an open government

2008
CDP worked with CoC departments to articulate Key Performance Indicators (KPIs) to monitor performance. It also supported data collection for planning through the use of mobile applications.

2014
CDP will develop an open data portal and dashboard; it will also support the implementation of performance based contracts for operation and maintenance of CoC services

What does it do?

Use of mobiles to collect data on municipal infrastructure and services

- KPIs identified through discussions with various engineering departments at CoC; used to develop a mobile-based data collection tool that can be used by CoC engineers at the ward-level.
- Training CoC engineers to use mobiles for data collection and creating the demand for improved methodologies.
- Developed a public-facing mobile application that allows residents to assess existing municipal infrastructure and to report problems of open defecation and garbage, information that can help CoC plan where public toilets and garbage bins are needed.

Usage of data & research

- Data on location and state of infrastructure of public toilets analyzed to gain insights into gaps in sanitation and to improve the quality of infrastructure.
- Incorporating the performance indicators in tenders for outcome-based contracts and linking performance with payments.
- Supporting the design of methodologies to plan for urban poverty and informal economic activities.
- Insights from data on bus shelters and buildings violations used to bolster legal cases in which CoC was a respondent.
- Creating links between CoC and a community of developers who can respond to technology needs to monitor civic services.

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What has it achieved?

- In 2013, TC worked with CoC officials to prepare a tender for new public toilets; it was the first time that the CoC used spatial data to plan for public toilets and mobile phones to collect data.
- In 2014, CDP was established to create a web portal to improve data management practices for city planning.
- Worked with CoC engineers to identify KPIs to measure performance of municipal assets.
- Mapped and visualised close to 150 unique processes in CoC; this will be the foundation for the dashboard.
- Used mobile devices to collect data for court cases in the Madras High Court and the Supreme Court.
- Provided research and data analytic support on issues of municipal infrastructure, revenue and public health.

What next?

Over the next year, CDP plans to scale its outreach and impact. This will include the following activities:

- Continue to improve the capacity of CoC departments for the better use of data for planning and implementation of city initiatives.
- Prepare and support the implementation of performance based contracts for municipal services.
- Establish platforms for public engagement by the CoC on planning and monitoring public services.
- Work with selected vendors to develop an open data portal and dashboard using open source software.
- Support the implementation of an equitable street vending policy and National Urban Livelihoods Mission.
- Institutionalize the use of mobile based surveys by CoC engineers to assess performance in their wards.

"The Chennai Data Portal and Dashboard project is an innovative initiative of the CoC that will take it beyond RTIs to proactive disclosure of data. It will also help city officials to be proactive in planning and monitoring and collaborate with residents to do so. The approach that we adopted is to make the dashboard responsive to the processes and data needs of the CoC and also to identify gaps that may occur given the responsibilities as enshrined in the Corporation Act. The approach uses technology and will deliver a technology solution but is guided by the needs of the city residents and officials."

- Dr. Vijay Pingale, IAS; Joint Commissioner, Works Department, Corporation of Chennai

Quality Indicators

Leadership

- Satyarupa Shekhar, Project Director of CDP & Director - Government Outreach and Advisory group, CAG
- Om Prakash Singh, Executive Director, CAG
- Prabu Raja, Director - Data and Technology, CAG

Partnerships & Endorsements

- Key program partners: Corporation of Chennai
- Networks: Open Data in Developing Countries, Open Knowledge Foundation, Transparency and Accountability Initiative.
- Invited to participate in the Open Government Partnership Regional conference in Indonesia, a multilateral initiative which secures commitments from governments to promote transparency.
- Invited to participate in the World e-Governments Organisation of Cities and Local Governments (WeGo) General Assembly in Chengdu, China. WeGo is a cooperative of city and local governments that promotes the use of ICT for public administration

"Governments around the world are being pressured to improve transparency and accountability, and to use ICT to improve public administration. However, city governments need to engage with citizens to make cities open, inclusive and responsive. TC's work on designing appropriate tools and methodologies to collect data on municipal services, and collaborations with the city government and residents to improve their capacities to use them is a unique response to the lack ofcapacities to adopt a data driven approach to planning and monitoring"

– Satyarupa Shekhar, Project Director, Chennai Data Portal and Dashboard

Model: Non-Profit

Urban Management Centre (UMC)

www.umcasia.org

Founded: 1997 | Head office: Ahmedabad | **Coverage:** Pan-India and South Asia | **Full Time Staff:** 21
Budget (2013-14): Organization – INR 1.8 Crore; Mobiles for Governance – INR 0.2 Crore

Organization Overview

Urban Management Centre focuses on strengthening the governance of cities, primarily in India and also other South Asian countries. UMC's mission is to professionalize urban governance by engaging with local government officials to build their capacities for managing cities and support the implementation of system improvements. UMC works in the areas of urban planning, water - sanitation, health, heritage conservation and municipal financial analysis.

Gap in the Sector
There is a lack of citizen feedback on the quality of public services (such as water and sewerage services) delivered by municipalities. The absence of this data deters key decision makers in the government from making informed decisions on service delivery such as suitable timings, frequency of service, and need for maintenance.

Mobile Enabled Response
UMC gathers citizen feedback on public services, using an android-based mobile application for the real-time survey and assessment of data. UMC has focused its efforts towards measuring, monitoring and improving performance assessment of municipal water and sanitation services in urban Gujarat and Maharashtra.

How did it evolve?

1997
Started as a project office of the International City Management Association (ICMA); Formed the City Managers Association in 11 Indian states, serving as a knowledge sharing and training platform

2002-2007
Facilitated city-to-city partnerships between Indian and US cities (eg. Indore Municipal Corporation and Garland City, Texas) for sharing best practices and innovative solutions for managing civic services; Registered as an independent organization in 2005

2008 - present
Received 7-year funding from CEPT University and Gates Foundation for implementing a performance assessment system for water and sanitation in Gujarat and Maharashtra; initiated use of mobile technology for gathering citizen feedback.

What does it do?

UMC provides technical assistance and support to city governments and facilitates change through peer-to-peer learning processes.

Municipal Performance Measurement: UMC along with CEPT University is attempting to mainstream performance measurement at the city and state level, by collecting and analyzing critical information for use in decision making. Performance Assessment System (PAS) is a flagship project, with the aim to measure, monitor and improve performance of **municipal water supply** and sanitation services in 400 urban local bodies (ULBs) of Gujarat.

Under the program UMC has partnered with World Bank, to use their mobile application to assess the performance of water and sanitation services on parameters such as availability, usage, quality and satisfaction. UMC has trained field staff from partner NGOs and municipal administrators from ULBs, and equipped them with android phones for door to door surveys. **Real-time dashboards** enable municipal administrators to see the analysis of the survey data in the form of graphs and maps.

UMC uses **survey tools to analyze existing levels of service delivery** and identify technical and systemic issues. UMC has developed its own 'CityCollect' android application, using which it has conducted a technical audit of all public conveniences of Ahmedabad. This has influenced changes in policies, operations and monitoring regimes in the Ahmedabad Municipal Corporation.

12 A ✓ 80 G ✓ FCRA ✓

What has it achieved?

- Created a performance measurement and assessment system, and a database of 167 cities across Gujarat, to be used for guiding decisions on urban water supply and sanitation at city and state levels.
- Has been able to establish a robust data management infrastructure for data entry, verification, quality check and resultant dashboards for analysis of the data.
- Have developed their own mobile application – CityCollect – to serve as an in-house data collection and surveying tool. The application has capabilities of creating custom surveys with geo-tags and photographs, and has been integrated with Google Maps for navigational purposes.

What next?

- Create capacity of local government officials to monitor the quality of public services using simplified management information systems with integrated real time data from citizens and relevant stakeholders.
- Make the CityCollect mobile application an open source tool for the use of ULB staff to monitor their projects and activities through data collected by municipal administrators.
- Extend the use of the mobile application to other projects within UMC – beginning with the listing and grading of heritage sites in Gujarat.
- Increasingly focus on building the capabilities of city managers and strengthening the systems and processes for managing and delivering civic services.

"The municipality is working towards improving efficiency in service delivery of basic services. The results from the citizen feedback survey will highlight the missing links and the key areas which we need to address."

-Mr. Ramesh Joshi, Chief Officer, Mehsana Municipality

Mr. Joshi was able to learn through the survey results that while the penetration of water supply services and level of satisfaction is high, the municipality needs to focus on extending sewerage services to households.

Quality Indicators

Leadership

- Manvita Baradi is the Founder Director of UMC and Meghna Malhotra serves as Deputy Director
- Manvita has worked on institutional development as an urban management expert for donors like USAID
- She serves as Dean, Faculty of Management at Centre for Environmental Planning and Technology (CEPT) and is also state Convener for INTACH-Gujarat chapter

Partnerships

- Key partners: CEPT University, Ahmedabad Municipal Corporation
- Key funders: USAID, CEPT University, Shakti Foundation, Climate Works Foundation, Ahmedabad Municipal Corporation, ICMA, Government of Gujarat

Endorsements

- Awarded by INTACH for 'Exemplary work done for the Preservation and Promotion of Historic Towns' in 2011, for its work in Surat, Gujarat.

"Cities are often viewed as the engines of growth. However with weak institutional capacities and systems and lack of professional management, city governments are struggling to provide quality services to its citizens. UMC is a friend of cities and works closely with local governments to catalyze systemic change for more efficient, inclusive and sustainable cities. UMC is uniquely positioned to deliver successful results on ground through our collaborative approach."

– Manvita Baradi, Director

Model: Non-Profit

Women's Organization for Socio-Cultural Awareness (WOSCA)

www.woscakendujhar.org

Founded: 1993 | **Head office:** Keonjhar, Orissa | **Coverage:** Orissa | Full Time Staff: 94
Budget (2013-14): Organization – INR 2.2 Crores; Mobiles for Governance – 0.2 Crores

Organization Overview

WOSCA works towards the development of women, children and poor in the Keonjhar district of Odisha. The organization primarily focuses on three sectors – local governance, education access, and preservation of the environment. Over the years, WOSCA's approach towards development has evolved to include service delivery, service tracking and advocacy.

Gap in the Sector
Marginalized rural communities, particularly in remote blocks of the district, are unaware of their entitlements due to lack of education and absence of formal structures. Additionally, weak local governance leads to poor service delivery, and as a result poor socio-economic wellbeing.

Mobile Enabled Response
WOSCA works towards streamlining the demand and supply side of government schemes through tracking the efficacy of the delivery of entitlements, using technology. WOSCA's intervention enables communities and panchayats, with the required negotiation power by providing real-time information on government service delivery.

How did it evolve?

1993
WOSCA was founded; organized women groups, undertook projects on training of women for livelihood development

2003
Strengthened WOSCA's institutional capacity; initiated work on the issue of governance through creating awareness about government entitlements

2008
Developed a mobiles for governance program – began to use mobile technology to track the delivery of government schemes at the grassroots

2013
Reworked program model to be revenue generating for the community - therefore building community ownership and financial sustainability for the program

What does it do?

- Tracking Entitlements for Rural Communities (TERcoms) is a mobile phone-based monitoring and information management system which tracks the efficacy of entitlement delivery under social protection schemes.
- Schemes presently tracked under the program include the Public Distribution System (PDS), Pension, and the National Rural Employee Guarantee Scheme (NREGS).
- Village Volunteers monitor the entitlements on real time basis at service delivery points and send the delivery details to a central server through a mobile handset.
- Monthly reports on the uptake of entitlements are shared with the community and local government for action and remedy to improve the governance and well-being of people. Access to this information, therefore, enables communities to demand their entitlements, and local governments to identify the leakages and better plan the delivery of the schemes.
- The TERcoms program has covered 46,482 families across 96 villages. Due to this 'mobile for governance' initiative, 4,844 bogus PDS cards have been seized, 4,238 poor families gained access to PDS, and 11,219 families have gained employment benefits.

12 A ✓ 80 G ✓ FCRA ✓

What has it achieved?

- By seizing bogus PDS cards, an estimated INR 7 Crores worth of rice has been saved from being distributed to fabricated beneficiaries in two blocks of Keonjhar district.
- Data collected and presented by WOSCA has enabled the Keonjhar district government to better plan and budget for employment schemes based on the real number of job-card holders, a priority list of vulnerable populations and an understanding of the nature of jobs demanded.
- The organization has successfully integrated a revenue model, enabling partial financial sustainability of the project. Village volunteers use product and price data for the consolidated marketing of agricultural products.

What next?

- Immediate plan is to streamline its use of technology – by upgrading to an Android-based application for data collection, and adapt a more user friendly MIS that can be easily migrated to Maps.
- Expand the program bandwidth to include the tracking of health and education schemes in existing and newer geographies. Additionally, make the TERComs platform available to other NGOs and government bodies to replicate the use of mobile technology for the well-being of communities.
- WOSCA's long-term plan for TERComs is to become a resource agency for the government in planning public benefit schemes using a real time database and trained human resources.

"I feel empowered by the information made available by the project – the information helped me fight the corruption that prevails in the system. The efforts put by WOSCA volunteers in strengthening the information base at the Gram Panchayat has made my job easy in planning further. I got recognition from government when I could present a comprehensive social security scheme delivery before them."

- Damayanti Munda, Sarpanch, Torani Pokhori village

Quality Indicators

Leadership

- WOSCA's Secretary Mrs. Dhariti Rout has 21 years of experience in planning, monitoring and implementing development programs

Partnerships

- Government and Non-Government program partners, including – NABARD, Ministry of Rural Development, Plan India, Centre for World Solidarity, Concern Worldwide

Endorsements

- E Governance Award by NASSCOM foundation (2010); World Bank Development Market Place Award (2011); Mobile for Social Good award by Vodafone Foundation (2012)

"Not surprisingly, this program is clearly disturbing the status quo and is generating a wide reactions from all concerned. Through the TERComs project I visualize a society empowered with information and well governed Gram panchayats."

- Mrs Dharitri Rout, Secretary

CHAPTER 6

Appendices

Appendix I

Non-profit mapping methodology

Dasra's non-profit mapping included desk research; detailed interviews with managers of non-profit organizations; and site visits to view programs on the ground and interact with beneficiaries of these efforts. Operationally, the following due diligence procedures were followed:

Initial Mapping:

During the research process for Dasra's report "Good to Great: Taking the Governance Leap in India," Dasra mapped over 120 non-profit organizations and social businesses by collating a comprehensive list of non-profit organizations and social businesses working within the governance space. Additional research yielded 10 more organizations focused on using mobile technology to improve governance in India. The selection of these organizations was based on a combination of internet research, participation at relevant conferences and forums, referrals from sector experts and databases of past and present grantees of governance-related funding. Thus, initial mapping yielded a list of over 130 non-profit organizations and social businesses throughout India. This comprehensive list was used to identify organizations that leveraged the use of mobile technology to execute their program interventions.

Phone Call Interviews:

At this stage, Dasra identified organizations that allocate significant resources to programs using mobile technology to address the issue of governance in India. A total of 24 organizations were selected for phone call interviews from the full list of 130 organizations. Information for this stage was gathered through detailed conversations with the organizational or program heads. The interviews discussed:

- Activities, direct and indirect, that relate to governance
- The use of mobile technology to accomplish these activities
- Proportion of total non-profit budget allocated programs that use mobiles for governance work
- Outreach of mobile governance programs since their inception and over the previous year (2013-14)
- Organizational and mobile governance program team size

Additional information gathered during this stage included: when the non-profit organizations and governance programs were established, their theories of change, geographical coverage, operational models, and interventions implemented. Based on the information provided, Dasra created a short list of 11 organizations to be profiled in the report, including 7 non-profits and 4 social businesses.

Site Visits:

The third stage of mapping consisted of meetings with managers and field staff of the organizations short-listed, seeing first-hand the operational models of the organization, and securing a clear understanding of how effectively their theories of change are translated into action on the ground. Dasra staff spent 1-2 days with each organization acquiring detailed information concerning the organization in general and mobile governance programs in particular, including the evolution of the program, its model, management structure, program financials, outreach and outcomes achieved. The visits were used to gain a deeper understanding of the organizations that would be highlighted in this report and recommended for funding. The discussions and information procured dealt with the following thematic areas:

- Program structure and documentation
- Management team
- Growth over the previous three years (2012-14)
- Future scaling plans
- Proven outcomes/impact
- Current partnerships (government, academia, international non-profit organizations, and other non-profit organizations)
- External endorsements (historical and current funders, and prestigious awards)

Non-profit registration/certification

- 12A: enables a non-profit organization in India to avail income tax exemption on its income
- 80G: Enables donors with a taxable income in India to get a tax deduction of 50% of the donated amount
- FCRA: Makes a non-profit organization in India eligible to receive contribution in kind or currency from foreign sources

Appendix II

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Appendix III

Organization Database

Association for Democratic Reforms (ADR)	**www.adrindia.org**
Awaaz.De	**www.awaaz.de**
Caravan	**www.caravanmagazine.in**
CGNet swara	**www.cgnetswara.org**
Digital Empowerment Foundation	**www.defindia.org**
eGovernments Foundation	**www.egovernments.org**
Gram Vaani	**www.gramvaani.org**
iForIndia	**www.iforindia.org**
IT for change	**www.itforchange.net**
Janaagraha Centre for Citizenship and Democracy	**www.janaagraha.org**
Khabar Lahariya	**www.khabarlahariya.org**
Mumbai Votes	**www.mumbaivotes.com**
National Campaign on Dalit Human Rights (NCDHR)	**www.ncdhr.org.in**
Next Drop	**www.nextdrop.org**
OneWorld Foundation India	**www.oneworld.net.in**
PRS Legislative Research	**www.prsindia.org**
Safecity	**www.safecity.in**
Social Cops	**www.socialcops.org**
Society for Participatory Research in Asia (PRIA)	**www.pria.org**
Spatial Ideas	**www.spatialideas.com**
Transparent Chennai	**www.transparentchennai.com**
Uniphore Mobile Software Solutions	**www.uniphore.com**
Urban Management Centre (UMC)	**www.umcasia.org**
Women Organization for Socio Cultural Awareness (WOSCA)	**www.woscakendujhar.org**

Appendix IV

Acronyms

ADR	Association for Democratic Reforms
AR	Augmented Reality
ARPU	Average Revenue per User
ASHA	Accredited Social Health Activist
ATM	Automatic Teller Machine
CSR	Corporate Social Responsibility
CSS	Centrally Sponsored Schemes
CTIL	Cornerstone Telecommunications Infrastructure Limited
DBT	Direct Benefit Transfer
DoIT	Department of Information Technology
FICCI	Federation of Indian Chambers of Commerce and Industry
G2B	Government to Business
G2C	Government to Citizen
G2E	Government to Employee
G2G	Government to Government
GDP	Gross Domestic Product
GIS	Geographic Information System
GPS	Global Positioning System
HWGO	Helping Women Get Online
ICT	Information and Communication Technologies
IVRS	Interactive Voice Message Service
MAP	Mobile Access Point
MLA	Member of the Legislative Assembly
MMS	Multimedia Messaging Service
MP	Member of Parliament
MSDG	Mobile Service Delivery Gateway
NREGA	National Rural Employment Guarantee Act
OECD	Organization for Economic Co-operation and Development
PDS	Public Distribution System
PMC	Pune Municipal Corporation
RTI	Right to Information
SMS	Short Message Service
UNFPA	United Nations Population Fund India
USSD	Unstructured Supplementary Service Data
WGI	Worldwide Governance Indicators
WOSCA	Women Organization for Socio Cultural Awareness

Appendix V

Glossary

Aadhar Number:
An Aadhaar number is a twelve-digit, unique individual identification number issued by the Unique Identification Authority of India on behalf of the Government of India. The number is based on biometric data and serves as a proof of identity and address, anywhere in India.

Aanganwadi Worker:
An Aanganwadi worker is a health worker chosen from the community and given four months of training in health, nutrition and child-care. She is in-charge of an Aanganwadi or daycare centre for children, which covers a population of 1,000.

App:
An app, or a mobile application, is a self-contained program or piece of software that can be downloaded onto a smartphone to perform a specific function.

Accredited Social Health Activists (ASHAs):
ASHAs are community health workers instituted by the Government of India's Ministry of Health and Family Welfare as part of the National Rural Health Mission.

Centrally Sponsored Schemes (CSS):
Centrally Sponsored Schemes are development schemes operated by State Governments in India, but funded by the Central Government of India.

Geographic Information System (GIS):
A Geographic Information System (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data. GIS applications are tools that allow users to create interactive queries (user-created searches), analyze spatial information, edit data in maps, and present the results of all these operations.

Interactive Voice Message Service (IVRS):
Interactive Voice Response is a technology that allows a computer to interact with humans through the use of voice and keypad inputs. IVR allows customers to interact with a host system via a telephone keypad or by speech recognition, after which they can service their own inquiries by following the IVR dialogue. IVR systems can respond with pre-recorded or dynamically generated audio to further direct users on how to proceed. These systems can be used to control almost any function where the interface can be broken down into a series of simple interactions. IVR systems deployed in the network are sized to handle large call volumes.

Push and Pull Technology:
"Pull coding" or "client pull" is a style of network or internet-based communication where the initial request for data originates from the client, and then is responded to by the server. The reverse is known as "push", or "server push," where the request for a given transaction is initiated by the publisher or central server, i.e. where the server pushes data to clients.

Panchayati Raj Institutions:
Panchyati Raj is a decentralized form of governance where each village is responsible for its own affairs. Panchyati Raj Institutions exist in a three-tiered system of administration: gram panchayat (at the village level), panchayat samiti (at the block level) and zila parishad (at the district level).

Public Distribution System (PDS):
The Public Distribution System (PDS) is an Indian food security system established by the Government of India, housed under the Ministry of Consumer Affairs, Food, and Public Distribution and managed jointly with state governments of India. It distributes subsidized food and non-food items to India's poor. Major commodities distributed include staple food grains, such as wheat, rice, sugar, and kerosene, distributed through a network of public distribution shops (also known as ration shops) established in several states across the country.

Unstructured Supplementary Service Data (USSD):
USSD, or Unstructured Supplementary Service Data, is a technology that is built into even the most basic GSM phones. It works by acting as a browser interface to pull content to a phone without an internet connection, thus greatly decreasing the cost of browsing.

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