Chapter 6

M-Vision and a call for action

As citizens across the world increasingly turn to mobile technology as their main source for news, information and connecting with others, m-government is expected to continuously expand. Governments understandably want to reach out to citizens in innovative ways in order to streamline administrative processes, facilitate accessibility and improve the quality of services in a number of areas such as finance, banking, weather emergencies and citizen engagement. The checklist in this chapter provides a preliminary guide to orient governments and help them improve their understanding on how to translate the new trends in the m-government field into a valuable tool to improve their performance, both internally and vis-a-vis the interaction with citizens and businesses.

Reaching the critical mass

As citizens across the world increasingly turn to mobile technology as their main source for news, information and connecting with others, m-government certainly will continue to expand. Governments understandably want to reach out to citizens in innovative ways in order to streamline the administrative process. Despite all the excitement with m-government, one fact is certain: no one purchases mobile devices so they can receive the benefits of mobile government. Entertainment (in the form of games, movies, and audio/video clips), family communications, and commercial applications will remain the main drivers, with governments taking advantage of the evolving trends. By 2018, the number of mobile subscriptions is expected to be almost the same as the number of global citizens, with mobile penetration estimated to be 96%.

Just as laptop sales surpassed desktop sales, texting and data services have outpaced voice communications. In 2007, when the iPhone first hit the market, there were only 500 apps available; today, there are more than 350 000 iPhone apps. Well over 100 000 applications became available for Android operating systems in just the first 18 months.

The device that most experts panned was the adoption of the iPad. According to the experts, tablet computers had failed often enough in the past, and that was before the low-cost netbooks became all the rage. But Apple made everyone take notice by selling over 15 million units in just nine months. After less than a year of sales, over 69 000 iPads had been sold. The iPad 2, with built-in front and rear-facing cameras, is predicted to do even better. It appears the market for smaller and lighter, feature-rich mobile devices will continue to capture consumers' imaginations, as well as create a rather abundant market for second-hand equipment sales. As the technology matures, there is every reason to believe that this market will expand and will extend to less affluent citizens.

In 2008, the District of Columbia, Washington, DC, created the "Apps for Democracy" programme, where citizens were asked to submit ideas and software code for applications that would benefit citizens. There were a number of winning entries, with 47 applications submitted within 30 days. It was reported that the very first submission was from an individual who created a location-aware iPhone application that can identify the locations of crime incidents in the surrounding area, as well as tell the user where the nearest Metro train station is and when the next train will arrive. This may be one of the first programmes of its type to get a sense of what citizens want, as opposed to what government would expect them to need. Moreover, with the new mobile apps technology, there will be much greater opportunities for a wider base of application designers to draw upon. And citizens now have the tools to create apps too.

Today, public safety agencies often struggle to capture data from citizens who send photos and video taken at crash scenes, weather-related disasters, fire emergencies and other at-the-incident locations. What's more, citizens are often at the scene of a disaster sooner than first responders. This type of reporting is further encouraged by the news media. Governments have been rather slow to respond and develop the systems to capture the necessary information and, in turn, transform it into useful and actionable information.

The eyewitness accounts from the past in the form of nervous words or disbelief at a tragic scene can now be replaced with pictures that often contain the exact latitude and longitude, time, and owner of the device in seconds, all automatically. Government agencies that have invested heavily in e-government systems now find themselves facing a new technological and social environment that contains a new set of challenges.

Today there are no less than three types of mobile apps:

• apps that utilise text messaging and perhaps voice-guided prompts;

• apps that are maximised to take advantage of mobile device web browsers;

• apps that are designed specifically for mobile devices, usually in the language of the device operating system.

In the third type, governments are either forced to choose which device to develop an app for, or simply develop different versions for the many types of operating systems, such as Symbian, iOS, Android, BlackBerry, or still others. To reach critical mass, public administrators will need to keep careful eyes on what types of devices are being used by their citizens. Officials also will need to better understand the latest trends and features being used and planned. Since the drivers for mobile device growth are consumers, the equipment manufacturers are vital to what will be made available, at what price, and when. Public administrators and government technologists will always be playing catch-up with the race to have better and more meaningful apps.

There are a number of indicators from today's markets that can provide planners with a view of what most likely will continue to grow upward in the mobile device arena and identify opportunities for government agencies.

An important consideration that planners should take into account at an early stage of development of new m-government services is the accessibility of those services for marginalised citizens, which include persons with disabilities and inadequate levels of digital literacy. As mentioned in Chapter 5, solutions that ensure accessibility exist and are implemented today around the world by regulators and mainstream mobile service providers. Accessibility solutions which benefit users with disabilities and ICT illiterates will

considerably improve the ease of use and the experience of all users, will avoid the creation of new forms of digital divide, and will ensure a greater success for m-government applications and services.

Examples of m-government application in policy areas

Finance and banking

For some time now, online banking has been very popular in many countries. People can pay bills wherever they are by just pushing buttons and either paying by credit card or debiting their personal or business checking accounts. Some of the latest applications allow a user to "cash" a check by simply using the built-in mobile device camera to take a photo of the front and back of a check. They can also look up balances and move funds from one account to another. For governments, this has the potential of becoming a means for paying tickets, taxes, fees, and other service charges. For whatever a government charges for services, the mobile device can be a means of input. Likewise, government agencies can deposit money in citizens' accounts and alert them through a mobile application sent to a mobile device.

While industry players are focused on providing new financial services to consumers, the role of government need not be limited to regulating these new services.

Governments themselves have an essential role in helping drive demand for new mobile financial services through their own programmes, with a special emphasis on Government-to-Persons Payments (G2P), including social transfers (*e.g.* social benefits, conditional cash transfers, vouchers or conditional aid, payments of salaries, pension). Governments can become the largest payer in the country, driving the scaling up of m-services to outreach the critical mass. Delivering these payments via mobile phones would have a significant impact on the daily life of people and on the evolution of the mobile financial services sector, as it would help expand the user base, stimulate collaboration to deal with security and business model challenges, and bring in new revenues for mobile operators, financial institutions and others involved to cover their network, application and service investments.

The device as the payment medium: Near Field Communications (NFC)

One of the newest technologies is called near field communications, or NFC. Many mobile devices already are coming to market with NFC chips installed. This technology will provide citizens with the ability to use their mobile device much the way they use a credit card. This will be particularly useful with transportation systems, where a passenger merely passes his or her mobile device by

a small terminal and the payment transaction is made. NFC can also be used for identification purposes, such as substituting for a physical security card. Since NFC is capable of receiving and transmitting data as well as instant verification at the same time, it functions as a smart contactless card and enables real-time processes and verification. NFC can be used for ordinary shopping, but perhaps it will be used for admission to municipal museums or sporting events. Since there is no physical swipe, NFC-enabled devices can allow for large numbers of people to pass easily through a mobile or fixed point.

Augmented reality

Just as many video games have embraced virtual reality, "augmented reality" is now being used as a commercial layer that sits upon a digitised map. Augmented reality apps used in business applications might include a picture of a street or landmark where signs and active directions are superimposed, letting one know where the nearest metro stop, or nearest coffeehouse or bank, might be. This type of technology makes it particularly easy for people who may otherwise be challenged by following maps to find specific stores or locations. Regardless, it is a more graphically pleasing presentation and has just begun to feature in applications public transportation.

Location-based mapping

As so many new mobile devices include built-in GPS chips, finding a location or knowing where one is located, is becoming a vitally important process. People are spending far less time getting lost and more productive time getting to where they intend to be. Users now have choices of directions for walking, driving, or taking public transportation from one point to another. Thousands of new commercial apps utilise mapping feature (GEO – Tracking chips) which is one of the key elements which enable the provision of critical data through the submission of a message or a photo.

Weather and emergencies

From police activities to earthquakes and fires, mobile devices are being used more and more as primary information platforms for microblogs like Twitter, social networks like Facebook, or other outbound communication applications. Government agencies have taken a lead in storm and forecasting alerts, such as flooding, forest fires, tsunamis, and other natural disasters. So far, the impact of m-government applications is strongest when it comes to utilising social and civic media applications to broadcast information, letting citizens know what to do, or where to go for shelter and help. At the same time, having the ability to receive, interpret, and respond to incoming data can be quite a challenge.

Citizen engagement

For many countries, citizen engagement has become a new means of communicating with citizens for multiple purposes via multiple channels. Examples of citizen engagement are applications in which citizens are encouraged to report on garbage pickup shortcomings, street potholes, flooding, tree removal, graffiti, and other services citizens would have previously had to call or write about. Thousands of new mobile applications have been designed to enable someone to simply pull up a form and fill in the required information – and perhaps add a photo taken with the mobile device too.

In the United States, the Federal Communications Commission established 311 dialling systems. While 911 is by far the most popular, 311 was designated for non-emergencies. Citizens were increasingly frustrated by not knowing who and what government agency to call when they wanted information or wanted to report a problem. Old paper-bound telephone directories, which used to carry such information, have disappeared in many places. Originally, it was thought that people could simply dial 311 on their rotary phones and obtain the advice they were seeking. When 311 systems initially were being planned, mobile phones had not been invented for mass use, let alone the Internet. Today, 311 is more of a description of a type of service, as it now is embedded in many government websites, takes information from mobile phones and other smartphones, with some very sophisticated apps. Photo-taking and report writing now are considered standard features for some of the new citizen engagement apps.

As social media grows and spreads, largely for social reasons, governments have found that they need to be where citizens are, and realise that no single communications solution will be the sole information channel. Public administrations now develop multi-channel communication systems among many different platforms and apps.

Translation

While still somewhat futuristic, a number of translation apps have been developed which suggests that, in the very near future, citizens will be able to type in words and have them instantly translated. What's more, it is only a matter of time for people to be able to speak into their mobile device in one language and have it instantly translated into speech for someone to actually hear and comprehend. This can be of great benefit to public safety agencies that must often deal in real-time emergencies with language barriers and, in general, as global business transactions and interactions expand rapidly.

Crowd sourcing

Crowd sourcing is described as taking a basic task usually assigned to an employee or department, and instead posting either questions or tasks online for a group to respond to, allowing them to provide shared responses, solutions or simply feedback en masse.. Some local governments are experimenting with this type of technology in order to gain greater citizen participation. Crowd sourcing, like many other social media or Web 2.0 applications, was never designed with governments in mind. However, like so many other applications, governments have been able to create hybrid apps that satisfy a civic need. Crowd sourcing, along with mapping, has demonstrated value in emergency situations; for example, in a fire or extreme weather emergency, citizens at the site of an incident submit real-time updates, pin-point locations and provide photos.

Authentication

Reliable identification has never been more of a challenge, especially regarding authenticity and balancing the rights of citizen privacy with the need for government to know who people say they are. Identification documents such as passports, driver's licenses, library cards, institutional ID's, and badges all have some weaknesses. Many governmental bodies have begun to experiment with m-government-designed devices that take advantage of biometrics, iris detection, bar coding, RFID, NFC, where the mobile device serves as the principal form of identification. Advantages include:

- real-time processing, authentication and updating;
- ability to rescind or reject in real-time environments;
- ability for real-time updating;
- reduced overall costs in processing ID cards, etc.

Open data

Open data is becoming a key component of citizen demand and government efforts for transparency, accountability and efficiency. This means greater collaboration with citizens, businesses and other agencies to ensure that shared data is current, accurate and accessible. Mobile platforms, especially with better location precision, are facilitating this transformation. Open data empowers citizens to hold governments accountable for the use of taxpayer money, provides access to important business development information, enables governments to both provide and obtain specific and current information in emergencies, and assists in targeting relevant data for diverse citizen needs, interests and geographic locations. Tracking the use of open data helps governments to identify the priorities of the people and groups they serve,

improving decision making and service delivery through better analytics. For maximum effectiveness, the evolving process for open data should allow governments to focus on what is most beneficial for social and economic development, rather than what is easiest to implement from a technological perspective.

Planning ahead

M-Government offers a new world of opportunities to build smarter and more open governments. This report is intended to identify the most promising avenues ahead, as well as to define a vision for the mobile and ubiquitous government of the future. This requires thinking beyond some of the traditional intellectual boundaries. Government officials examining the fast-moving m-government environment should begin the planning process by asking "why" before asking "how". Each governmental unit may have unique needs, opportunities, limitations and perhaps restrictions. Some limitations may be technical, while others may be administrative or political. Some m-government applications may work in one setting but not in another.

Taking stock of recent experiences, this publication is intended to share best practices and provide some lines of reference, and possible guidance, to stimulate ideas and solutions, and help governments address the challenges associated with m-government development. The checklist below offers a preliminary guide to orient governments and help them to improve their understanding of these most recent trends, and make the most of the new available opportunities to deliver better services to their citizens and businesses. The checklist invites policy makers to focus on four key areas through a set of 17 actions.

A checklist for the future

Better monitoring of m-government development

- Research, evaluate and understand regularly the latest trends regarding new mobile devices, features, and adoption.
  - How many people are using which types of devices?
  - How well do these devices operate, under what conditions?
- Constantly monitor, evaluate and report on the latest trends in new mobile devices, technological advancements and social and civic media applications, in order to prepare a road map for future m-government applications.
  - What are the basic usage trends?
  - What do we know about the people who are most likely to use them?
  - How do they match the government communication goals?

- Begin and continue to experiment with new m-government applications to continuously foster innovation.

- Be aware of and optimise the use of technological innovations that will make it easier and less expensive to deploy new m-government services; and consider interoperability of new mobile public services at legal, organisational, semantic and technical levels.

- Analyse, prototype and evaluate m-government services to understand whether any changes leading to new forms of information or service delivery, and/or access, will be accepted by citizens.

Strengthening the public sector's capacity and enabling an environment favourable to m-government

- Strengthening the public sector's capacities and strategic planning skills. Often, high-level public officials worldwide express concern with the fact that not all civil servants may embrace e-government and/or m-government. Some see these new developments as a threat to their jobs. Governments are concerned with the need to:

  - Develop civil servants' capacity to familiarise with, and effectively manage, m-government applications.

  - Improve internal communications between and among government units in order to better integrate m-government applications.

  - Provide rewards and incentives to increase civil servants' buy-in and adoption of m-government.

- Adopt relevant policies and procedures for the use of the new tools (*e.g.* social media site standards, how these will be used and monitored, what and how performance metrics will be tracked). Without policies and procedures, there is no way to know if a particular programme or service is working or not, or if it is being used as intended.

- Ensure continuous updating of the legal and regulatory framework to make it suitable to m-government (*e.g.* including social and civic media, digital signatures, security, authentication, identity, content, payments, privacy, terms of service). For instance, as many of the new m-government applications are accepting payments, personal information and legal documents, the need increases to ensure that such efforts are covered and supported by national laws and regulations.

- Provide clear guidance to government departments on issues related to privacy and security. From a technology perspective, as the use of wireless communications to access government services for both citizens and public servants will increase, privacy and access to

information will be an important challenge and additional security will be required (*e.g.* user authentication is an important challenge to address fraud in the case of lost or stolen mobile devices).

Seizing the potential of m-government to foster open, responsive and transparent government and citizen engagement

- Secure government agencies' responsiveness to citizens' expectations in terms of accountability, transparency, and improved delivery of public services. This implies adopting policies and procedures for managing citizen expectations. Citizens using the latest mobile devices and gadgets have high expectations for service availability and responsiveness. This would certainly extend to any new m-government offering. Any m-government service should be planned fully and tested well in advance to ensure that the system works as it is supposed to.

- As m-government is now becoming firmly entrenched into an increasing array of government business and administrative functionalities, more is needed by way of research, best practices, training, and mutual peer learning. Identifying, reviewing and disseminating best practices for citizen engagement applications will help civil servants and policy makers to spot what other agencies are doing, what works and what doesn't work, and why it is beneficial in determining innovative and relevant applications. There is a need for international organisations such as the ITU, OECD and DESA to continue to collect and disseminate best practices from countries worldwide.

- Expand and implement citizen engagement opportunities through web-based applications, which will benefit governments and citizens.

- Continue researching the topic to identify best practices regarding technology applications, training and citizen satisfaction.

- When building a new website ensure it is accessible to citizens from a technical standpoint and in terms of content.

Developing and adopting broader strategies

- Leverage the increased use of smartphones and other mobile devices throughout society, as this will produce a significant impact on m-government.

- Be aware of the need to adopt different strategies (i.e. an infrastructure strategy, a service delivery strategy – based on users' needs assessment – and an organisational change strategy).

- Continue to innovate and experiment with new mobile applications.

- Ensure that the input of a few, however well-intentioned, does not replace the will of the many. Systems and safeguards will need to ensure that a "digital mob scene" does not substitute for democratic values and institutions. Regardless of m-government adoption rates, there will remain a significant part of any given population that will not have the resources or understanding and will thus require alternate ways to communicate with government. M-Government policy actions should therefore try to avoid widening the digital gap.

- Raise national awareness of the need to invest in the development of broadband availability and emerging technologies.

- Strengthen public-private partnerships in line with the trends that have emerged in many countries worldwide, where government agencies are working with private companies to develop applications that will have market appeal to be sold and adopted by others. Partnerships with global mobile suppliers/providers are key to the success of m-government for functionality and cost reduction/funding. The main advantages of this type of relationship are:

    - Upfront start-up costs can be amortised among a larger pool of users;

    - Governments lacking in technology application development expertise can turn to those who do have the expertise and can be held accountable for their work.

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