

## Chapter 3

### Understanding m-government adoption

*M-Government is not just a series of single initiatives; rather, it is becoming a strategic and inherent way of doing government business. Government adoption of mobile technologies is propelled by a number of factors, such as policies, standards, cultural trends, availability and costs. When analysing the potential of m-government within an agency, and the modality for its adoption, it is important for the governments to examine a number of elements. These include the value chain, which is created by the various entities that provide the products and services required in the process of constructing a mobile solution, the key players and stakeholders across the value chain, as well as the stakeholders' partnerships and collaborations.*

## The inherent value of m-government

M-Government is not just a series of single initiatives; rather, it is becoming a strategic and inherent way of doing government business. Real leadership will be demonstrated by those public organisations that adopt and leverage mobile business models.<sup>1</sup>

The dictates for government entities are clear: cutting costs through greater efficiencies, without reducing services; understanding and maximising the power of new technologies; providing new choices for communication and access channels to citizens, including new social media applications and options; and addressing citizens' social and economic needs.

To meet the challenges and maximise the opportunities, governments must:

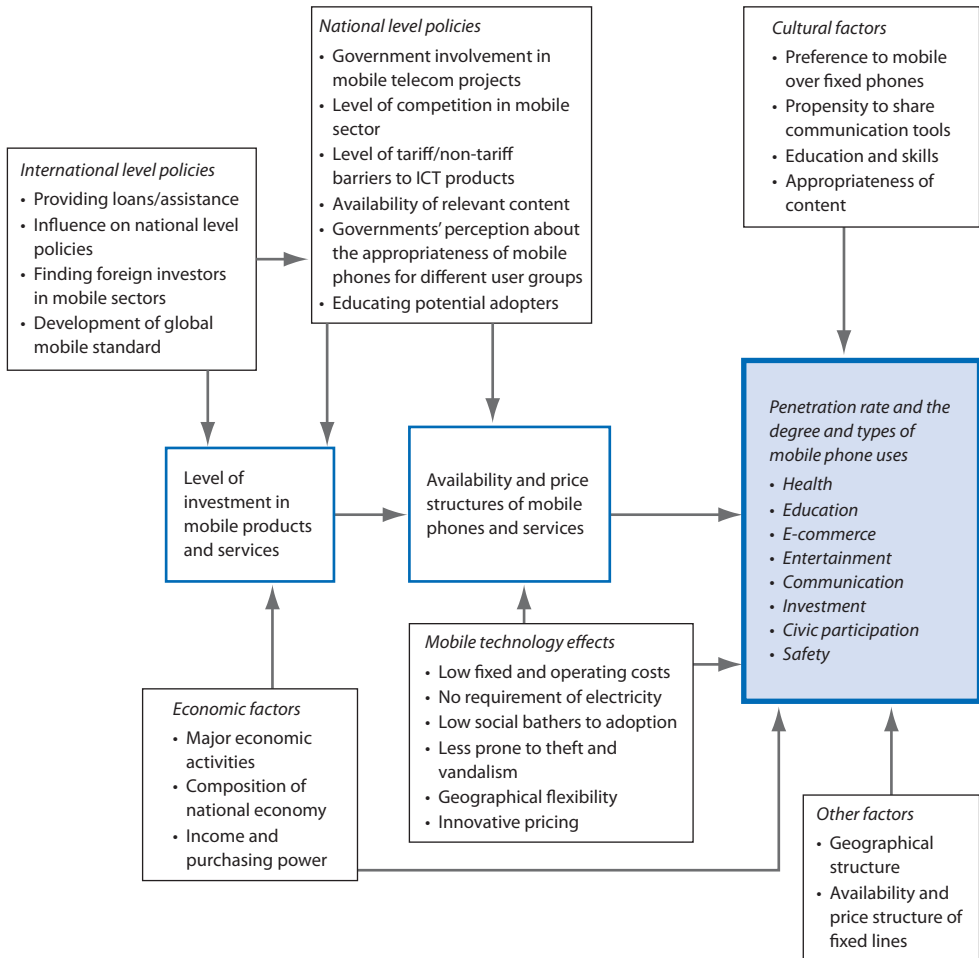
- know how to deploy new technologies quickly with minimal risks;
- know how to ensure sustainability for those technologies and the processes and services they support;
- foster innovative ideas in terms of service delivery, targeting both individuals and communities;
- enlist and benefit from the competencies of integrators, software providers, and wireless carriers with regards to specific tools and overall knowledge;
- recognise the value of system flexibility to meet future transformations in technology;
- expand knowledge of effective mobile application models.

## Adoption factors

Government adoption of mobile technologies is propelled by a number of factors, such as policies, standards, cultural trends, availability, costs, and economics. The Mobile e-Development Model (see Figure 3.1) is a useful framework to identify relevant factors that are driving adoption of mobile technologies.

Governments can take a strategic approach to increase the take-up of m-government. A first step is to examine how national and international policies are influencing mobile penetration. When governments open the mobile market for competition and invest in mobile projects, availability of mobile devices and accessible pricing structures increase. Agreements to eliminate customs duties on mobile products can also accelerate mobile acceptance by driving down user costs. Adoption is strengthened when governments facilitate the development of relevant Web portals and content. Economies

Figure 3.1. Mobile e-Development Model



Source: Dholakia, N. and N. Kshetri (2001), *The Global Digital Divide and Mobile Business Models: Identifying Viable Patterns of e-Development*, University of Rhode Island, USA.

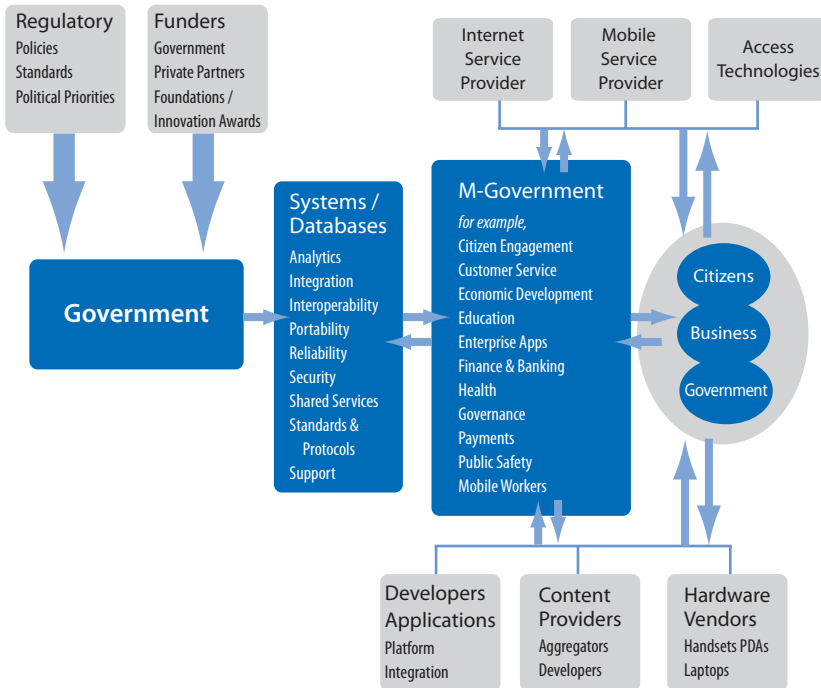
of scale are achievable through global standards for mobile communications. Economic factors can determine mobile adoption rates in a number of ways, ranging from the purchasing power of users to the potential impact of measurable GDP growth. Government consideration of these and other specific economic conditions can direct the focus of mobile applications as viable solutions for economic development and poverty reduction. The lack of availability

and costs of fixed lines and computers can underscore the prospective value of m-government in many locations. Lower costs, geographic flexibility, scalability, and ease of acceptance are some of the advantages of mobile technology that foster adoption. Cultural factors for different geographic areas and user groups also need to be considered, as they influence communication preferences, comfort levels with sharing mobile phones and perceived usefulness of applications. Countries with aging, or less tech savvy populations, will have a much lower adoption rate than countries with younger populations. Economic factors will play a role too, so classical services will unlikely disappear. Building capacity in and alignment of these elements can help an organisation attain m-government goals.

### Mobile value chain

When analysing the potential for m-government within an agency and how it can be adopted, it is important to examine the value chain which is created by the various entities that provide the products and services required

Figure 3.2. M-Government value chain model



Source: Susan Cable, Public Technology Institute, 2010

in the process of constructing a mobile solution and to identify strengths and address gaps. Besides government agencies, the key entities are: the wireless operators and service providers; independent hardware vendors; communication infrastructure providers; independent software vendors; system integrators and device manufacturers. All components of an enterprise mobile solution are related, and strategic partnerships are advantageous and critical to reach an integrated end-to-end solution.<sup>2</sup> Figure 3.2 provides an example of a value chain model for m-government.

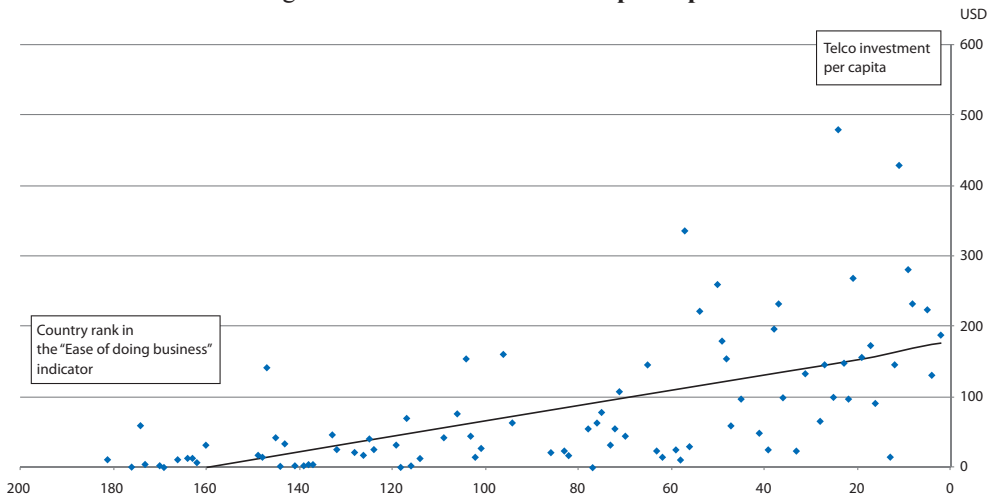
Following an effective application of the model, mobile initiatives would be jumpstarted by positive regulatory policies and standards, and through resourceful funding strategies. The foundation for these initiatives is built on quality systems and databases, which are then utilised in a mobile application that has relevance to users. Missing pieces can derail the process, but innovative technologies, new application options and an updated paradigm of integration are generating effective alternatives, often eliminating the complex task of building new systems. Access technologies and mobile devices that support users are rapidly improving. Mobile service providers are responding at a rapid pace to a competitive environment. New and interesting partnerships of mobile and Internet service providers, along with application developers, are emerging – including more open source solutions. Usage of data and projections for mobile adoption are driving a supportive environment for the expansion of government mobile services that promote citizen engagement and enhanced customer services; provide mobile applications related to key government service areas, such as economic development, health, education, finance, and public safety; and enable more specific functionality, such as payments and mobile workers. Partnerships with global suppliers are key to the success of m-government for functionality and cost reduction/funding. Wireless infrastructure roll-out will depend on the service providers and their business plans, *e.g.* when to move to 3G, 4G. There will be a cost to upgrading, and there are competing technologies as well which will need to be considered.

### Key players and stakeholders across the value chain

**Telecom operators** – Private sector investment continues to be a primary driver in the expansive growth of mobile technologies, especially within positive legal and regulatory environments. Private mobile operators provide services that are responsive to the demand of consumers and generate profits for both manufacturers and operators.

As illustrated in Figure 3.3, the ITU reports that a relatively better performance in the “Ease of doing business” country rankings is associated with higher levels of telecom investment per capita.<sup>3</sup>

Figure 3.3. Telecom investment per capita



Source: ITU World Telecommunication/ICT Indicator Database and World Bank Doing Business.

In OECD member countries mobile revenues have grown 7.5% each year since 2005, reaching USD 526.7 billion in 2007. Even though mobile revenues in telecommunication sectors differs across countries, they have accounted for 45.4% of all telecommunication revenues in the OECD in 2009, up from 24.4% just ten years earlier. started to fall from high levels in the 1990s with the introduction of competition in the sector. This pushed prices down more than 50% from 1996 to 2002. Operators countered the fall in voice revenues by emphasizing new and existing data services such as WAP, GPRS, 3G and SMS. The effort was successful and mobile revenues per subscriber have been slowly increasing since. Operators are looking to data on 3G networks as a new revenue source, but these investments are only now beginning to draw in a substantial number of users. Data services on 3G networks remain a promising source of new revenue.<sup>4</sup>

**Government** – The role of government is to develop policies and standards, and to co-ordinate partnerships with technology providers. Governments not only play a role in shaping policy and regulations, they can also stimulate demand and create the local market. Governments are the advocates for citizens in identifying the best applications of mobile technologies to advance responsive public service delivery, expand citizen engagement, improve service delivery, increase operational efficiency and amplify accountability.

**End users** – Citizens, businesses and government workers who use government's mobile phone applications impact adoption of mobile services, provide input for applications and improvements and influence each other. They are the

customers of m-government, but even more importantly can be encouraged to become co-designers of solutions.

**Device manufacturers** – Manufacturers are responsible for building mobile devices that can conduct voice or data transactions between proprietary networks and ensure updated operating systems. They have an important role in adding value for users by meeting their changing needs for size, quality, appearance, functionality, and synchronicity. Device manufacturers can drive network operators to increase the functionality of the network and reduce infrastructure costs with smart devices.

**Infrastructure providers** – Mobile communication infrastructure involves the design, manufacturing and assembling of switches, gateways, and interfaces to conduct mobile communications among subscribers and the public switched telephone network (PSTN). Infrastructure providers' products include base stations, base station controllers, mobile switching centres, packet control unit, GPRS Support Node, Mobile Operator's Packet Switched Data network, Gateways, WAP Servers, PSTN interface and other circuit switch and packet components. They provide the network necessary for mobile users to perform voice and data services, and enhance the process by increasing the functionality of the network, while lowering costs and increasing performance. They can also provide knowledge of interfacing with legacy networks.

**Application developers** – Applications provide the interface between the device and the network hardware. Developers' role in creating and releasing wireless applications to support services like WAP and c-HTML – and in writing efficient programmes that help mobile users to conduct transactions from anywhere and at any time – are key to the effectiveness of mobile Internet and connected government. Another important role of application developers is to support personalisation and synchronicity.

**Content developers and enablers** – Content developers compile content into mobile-ready formats so applications can immediately extract desired information and package it according to users' requests. They play a key role in enabling mobile users to have personalised information anytime and anywhere to conduct transactions.

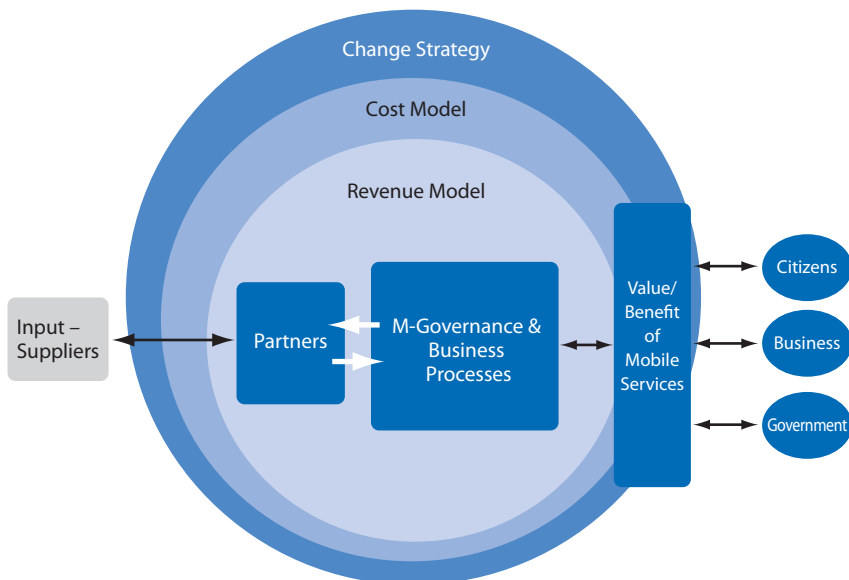
## Stakeholders' partnerships and collaboration

According to Chetan Sharma, regardless of the applications, the evolution of the mobile services platform will be significantly impacted by “private-public partnerships and collaboration between profit-driven companies, research institutes, government agencies, non-profit agencies, charitable concerns with specific goals, and consumers.” Understanding this is vital. Funding is foundational for m-government, and both financial and technical resources need to be co-ordinated; additionally, the strongest teams with the greatest capacity

for working together are required to meet challenges, minimise duplicative efforts, maintain alignment and achieve common goals. Technical collaboration is required for critical functions, such as emergency planning and rapid response, in order to find the best solutions which use the most innovative technology and enable improved responsiveness. “Government and regulatory agencies must create an environment that balances the fostering of mobile government growth and user-protection through current and relevant policies. Mobile technologies should advance with market competition, consumer privacy, secured sensitive information and clearly defined liabilities.”<sup>5</sup>

Public-private partnerships (PPP) can align resources and expertise to effectively accomplish shared goals for mobile services (see Figure 3.4). Although partnerships may vary with regard to structure, responsibilities, management and governance, a basic business model includes identifying and agreeing upon: (1) a user-group for the mobile service; and (2) the specific benefit and value of mobile services to that group; (3) the revenue or benefit to the providers/partners; (4) the business processes and activities that will produce the mobile services; (5) the requirements for and allocation of partner resources and competencies; (6) the costs to acquire, produce and distribute the mobile services; and (7) suppliers of required resources, including physical, human and financial capital, as well as policy makers. Supporting this model is a commitment to ongoing management, adaptation

Figure 3.4. **M-Government business model**



Source: Susan Cable, Public Technology Institute, 2011.



and improvement to successfully address change factors, such as new users, emerging technologies and economic climates.

An excellent example of collaboration in the pursuit of a common objective is Text4baby,<sup>6</sup> a mobile health programme which promotes maternal and child health among underserved women. Launched in February 2010 to address the rising infant mortality rate in the United States, Text4baby provides timely and expert health information through SMS text messages to pregnant women and new mothers through their babies' first year. This broad, public-private partnership includes government agencies, corporations, academic institutions, professional associations, tribal agencies and non-profit organisations. Outreach partners spread the word about Text4baby in many different ways and encourage the women they reach to sign up for the service. Founding partners include HMHB, Voxiva, CTIA – The Wireless Foundation and Grey Healthcare Group (a WPP company). Johnson & Johnson is the founding sponsor, and premier sponsors include WellPoint, Pfizer and CareFirst BlueCross BlueShield. US government partners include the White House Office of Science and Technology Policy, the Department of Health and Human Services and the Department of Defense Military Health System. The mobile health platform is provided by Voxiva and free messaging services are provided by participating wireless service providers. The success of the programme has been facilitated by extensive collaboration from the national to local levels of partnerships and participation.

## Notes

1. [www.busmanagement.com/article/How-companies-can-utilize-todays-advances-in-mobile-technologies-to-add-value-to-the-existing-business-model/](http://www.busmanagement.com/article/How-companies-can-utilize-todays-advances-in-mobile-technologies-to-add-value-to-the-existing-business-model/).
2. Mallick, M. (2003), *Mobile and Wireless Design Essentials, Components of a Wireless Environment*, Wiley Publishing, Indiana, USA.
3. ITU, 2009.
4. OECD (2009), *OECD Communications Outlook 2009*. OECD, Paris.
5. Sharma, 2008.
6. <http://text4baby.org/>.

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