Mobile and other channels for inclusive multichannel service delivery

5.1. Introduction

Eradication of poverty remains high on the global development agenda and requires empowering people living in poverty and other disadvantaged and vulnerable groups[1] with public information and services. Different modalities and channels for extending public service delivery to all the people and leave no one behind including disadvantaged and vulnerable groups. The evolution of e-government in the next stage beyond 2015 needs further rethinking and transforming the way government institutions operate, with citizen needs and expectations at the core of its business re-engineering process. An integrated inclusive multichannel service delivery approach is, therefore, central to the successful implementation of the way forward.

Opportunities are available with information communication technologies (ICTs) evolving in transforming societies, cultures and economies. Over the past decade, the world has witnessed changes brought about by the rapid advancement of technologies such as the Internet and social media along with sophistication and convergence in hardware and software of the ICT ecosystem. Broadband connectivity, already pervasive in developed countries, is being rapidly deployed in emerging markets. Social networks have made profound changes and impacts on the ways people interact with one another and with their governments. Open government data and cloud computing, coupled with consumerisation of mobile devices, have further enriched the ecosystem. Box 5.1 highlights some significant global and regional trends.

In this chapter:

Chapter 5

Box 5.1.   Some significant global and regional ICT trends

Almost 40 per cent of the world's population are online by the end of 2013; but in Africa, only 16 per cent of people are using the Internet.[2] Mobile phone subscriptions exceeded 6 billion in October 2012 and the number is approaching global population (7 billion), with more than half in the Asia-Pacific region (3.5 billion out of 6.8 billion total global subscriptions).[3] In fact, more people have mobile phones than have access to flush toilets and electricity.

Smartphones[4] outsold feature phones[5] for the first time ever in the first quarter of 2013,[6] with Asia as the fastest growing market with 74.1 per cent growth.[7] Rising global demand is expected to drive lower cost of smartphone chips. There are more than 2 billion mobile broadband subscriptions by the end of 2013 with a growth rate of 40 per cent per annum. In Europe, there is 68 per cent penetration but there is only 11 per cent penetration in Africa;[8] the contrary fact is that mobile broadband is more costly in developing countries. Nearly one in four people worldwide will use social networks in 2013. By 2017, the global social network audience will total more than 2.5 billion.

Source: http://www.itu.int

There are, however, also increasing expectations from citizens for easier access to more public information and government services from anywhere, anytime through different channels. The public sector is under pressure to transform itself to respond to changes and radically explore new ways to meet citizen demands. Furthermore, constrained resources in many countries over the past few years have led to a reduction in budgets available for maintaining and developing on-line services. This has in turn mandated a more streamlined approach focussing on results and impact to providing public services in many countries.

This chapter draws findings of the 2014 *Survey* to explore the global and regional trends of various channels or citizen touch-points of public service delivery. The 2014 Survey questionnaire includes a set of questions to assess the different channels of service delivery in Member States. All sources of data used in this chapter come from this questionnaire, unless otherwise stated. It then presents a multichannel approach as witnessed by practical implementations of multichannel service delivery among leading countries. It concludes with a few key findings and recommendations for consideration by policymakers in embarking on an inclusive multichannel e-government strategy planning, implementation, monitoring and evaluation.

5.2.   Global trends of the delivery landscape

Multichannel service delivery is the provision of public services through various means in an integrated and coordinated way.[9] Channels extend from traditional citizen touch-points like counter and voice services, to online means like Internet access through personal computers (PCs), mobile phones and tablets and to emerging media like mobile apps and social media. Table 5.1 shows a non-exhaustive list of channels used in public service delivery.

A channel can change a user's perception and confidence of a public service. For instance, in the context of value proposition of a public service, a channel can add value with a positive user experience, and in the same vein, it can subtract value through a negative user experience. Therefore, it is extremely important to select the right channel for the right service targeting the specific audience. At the same time, channel selection is a deciding factor to effectively reach out to specific groups of citizens, for example, rural population with limited ICT access.

Table 5.1.   List of channels (non-exhaustive)

1.   Counter (face-to-face) service
2.   Telephone (voice) service and call centres
3.   Web portal
4.   Email
5.   SMS and other messaging services
6.   Mobile portal (mobile website)
7.   Mobile app
8.   Social media
9.   Public kiosks
10.   Intermediaries through public-private partnership

Digital channels, with both their diversity and spread, are increasingly embraced by almost all countries, while counter (face-to-face service) and telephone (voice) services, have continued to serve as fundamental channels as preferred by some citizen groups. Through strategic and optimised mixed use of channels, governments will be able to provide ubiquitous 24 x 7 access to information and services to different user groups.

5.2.1.   Web portal

The 2014 *Survey* concludes that all 193 United Nations Member States have some form of online presence, as compared to 18 countries with no online presence in 2003 and 3 countries in 2012 (see Figure 2.1 in Chapter 2).

Research shows that offering more online services and aiming for increased usage of these services improves efficiency and results in cost reduction. According to one research study,[10] the Government of the United Kingdom could save between GBP 3.30 and GBP 12 per transaction by moving public services online. Denmark has made mandatory the use of online public services in its e-government strategy and action plan covering the period 2011–2015.[11] When fully implemented, it will go "digital by default" for citizens and businesses with the aim of making public service delivery more cost-efficient. Similarly, the Government Digital Strategy[12] of the United Kingdom published in November 2012, stresses that all services should be "digital by default". The strategy states 11 principles and 14 actions to shape how central government departments and agencies will embrace digitalization of their services and improve usage by citizens and businesses. The Government of the United Kingdom has since committed to the

redesigning and rebuilding of 25 significant "exemplar" services to make them simpler and faster to use, as an attempt to meet the Digital by Default Standard by April 2014 and be completed by March 2015.

The 2014 *Survey* reveals other trends and insights of e-government web portal development among countries like improving site navigation, extension of features and services offered, to the use of single search interface. (see Chapters 1, 2 and 4).

5.2.2. Email

Email has been a mass channel for routine and ad-hoc communication between governments and their people. Other than information provision, email notification is often integrated to online and mobile services. For example, an incoming email will invoke a workflow action for issuance of a birth certificate copy. Automated emails informing citizens about the status of online applications also build trust and boost user confidence as part of the citizen relationship management process.

The 2014 *Survey* looks at the use of emails in national portals. As can be seen in Figure 5.1, emails remain a fundamental, both complementary and supplementary, channel of the web portal. It is used in all sectors including targeting disadvantaged and vulnerable groups. There is only a slight growth from 65.3 per cent (126 countries) in 2012 to 68.4 per cent (132 countries) in 2014. If the trend of past and current Surveys were to follow, it is expected that there will be increased usage of the email channel for notification and information provision. A simple email link to government officials, at any level, may exponentially increase the ability of people to interact with government online; at the same time, it may also potentially increase the workload of government officials and therefore, unnecessary costs may be incurred if not managed effectively.

Figure 5.1.   Percentage of countries providing updates via email or feeds
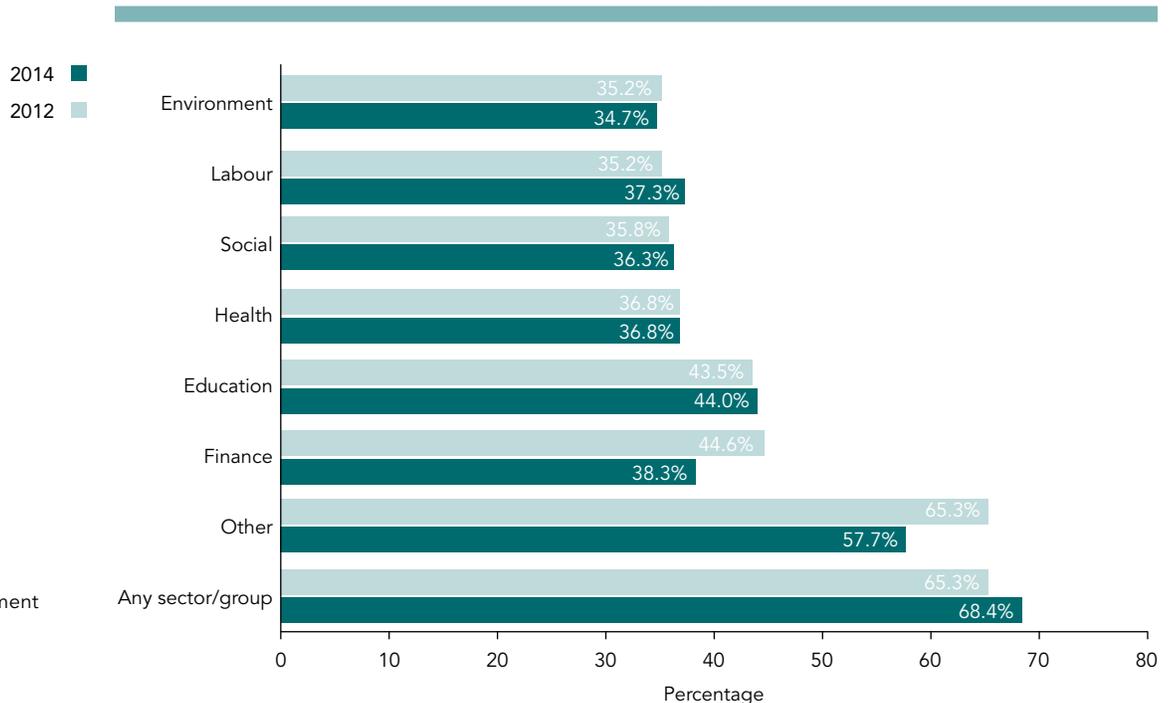
Source: UN E-Government Surveys 2012 and 2014

5.2.3. SMS text service

SMS stands for Short Messaging Service—a service that enables users to send text messages to other users through mobile networks. With the proliferation of mobile phones in all regions around the world, countries that have embraced SMS text channel are, surprisingly few and far between. Figure 5.2 illustrates that the number of countries utilizing SMS text service increases slightly from 27 in 2012 to 32 in 2014. More than 80 per cent of the countries have not taken up this mass channel for public service delivery.

Figure 5.2.   Slight growth of the SMS text channel from 2008 to 2014
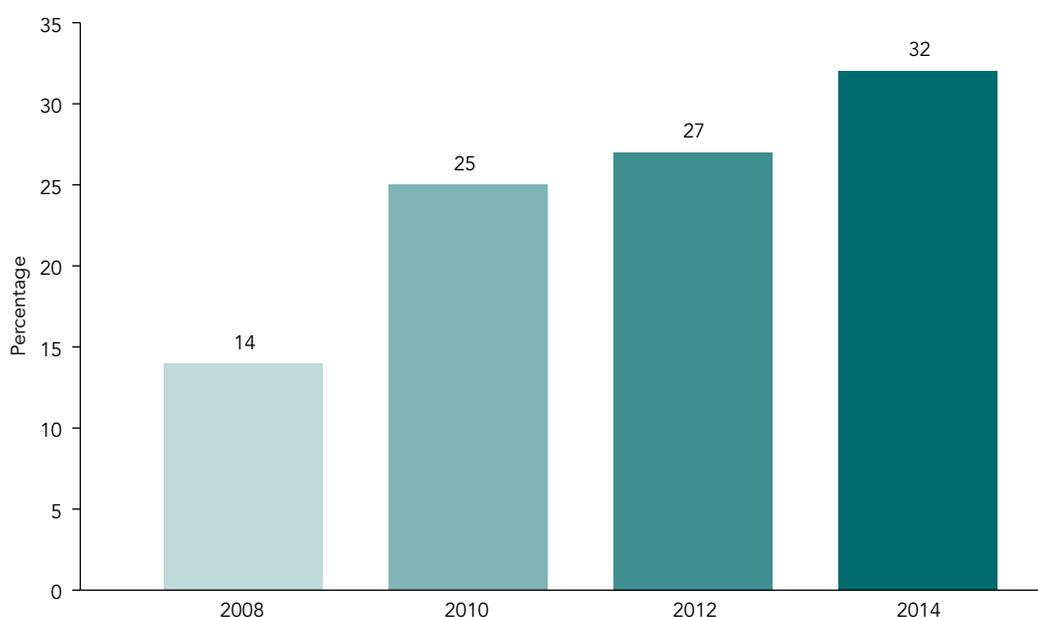
Box 5.2.   Innovative applications of SMS service in Jordan

In recent years, governments have deployed various innovative applications of SMS text service. The local Government of Amman, the capital of Jordan, has launched an SMS services portal[13] aimed at increasing the channels of communications between citizens and governments. It is now recognised as the most prevalent communication tool with all segments of the Jordanian community, helping in enhancing the quality and efficiency of governmental services. It provides citizens with two types of services: (i) push messages by governmental institutions and departments such as reminders and awareness campaigns; and (ii) pull messages that are sent by citizens as an SMS inquiry and are automatically responded to by the relevant governmental department. In South Africa, citizens are updated on the progress of application of identity books and identity documents through SMS service.[14] In addressing social inclusion, the Singapore government launched an SMS text service (SMS70999[15]) for members of the deaf, hard-of-hearing and speech-impaired community to reach emergency services.
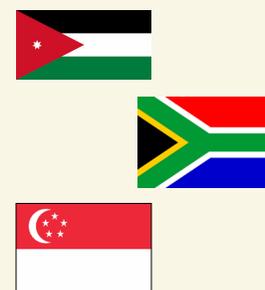
Box 5.3.   Life-saving SMS service in Sweden

The Swedish Government has implemented a country-wide programme called SMSlivräddare, or SMSLifesaver, where citizen volunteers can enrol to receive an SMS text when there is a heart attack victim nearby, allowing trained citizens to reach the victim and provide cardiopulmonary resuscitation (CPR). Upon receiving an alert through an emergency hotline, the call centre will send SMSlifesavers within a quarter mile (500 meters) vicinity a text message with an address and map. Cardiac arrest victims are able to get quickest help possible through this automatic SMS service and it has proven to save more lives as compared to sole reliance of the ambulance service. The average response time of ambulance is eight minutes whereas SMS-livräddare-volunteers have proven to respond quicker and reach victims before ambulances in 54 per cent of cases. Stockholm County has seen a rise in survival rates after cardiac arrest from 3 per cent to nearly 11 per cent, over the last decade.

Source: SMSlivräddare http://www.smslivraddare.se/; QUARTZ (www.qz.com)

5.2.4.   Mobile portal and mobile app

A recent research report[16] shows that there are 1.5 billion smartphones users in the world or about 21 per cent penetration rate of all mobile users in 2013 and the number is increasing exponentially in many countries. In Kenya, it is reported[17] that 99 per cent of Internet users access it through the mobile channel. Based on these facts, in their e-government strategy, policymakers should consider: (i) deploying SMS services for immediate outreach to mobile users with feature phones; and (ii) planning for mobile web and mobile apps for the next wave of mobile users with smartphones and tablets.

While there is still a general concern of affordability of smartphones in developing countries, cheaper components and reference operating system designs from chipmakers are pushing for cheaper smartphones. In India, the price of a low-end Android mobile phone had halved in 2012 to about US $50 and prices are expected to drop further. Increased affordability and mass market trends will drive more ownership of smartphones and tablets. Governments must strategically plan for the effective utilisation of the mobile channel.

As we have witnessed in verticals such as retail, hospitality, entertainment and travel, the mobile channel is essentially a communication and marketing strategy that augments other channels. At the same time, it is a pervasive one that is in close proximity to its users and it is action-oriented, meaning that one uses the mobile phone to "do something". The same applies to e-government. In addition, as compared to other channels, the mobile channel offers greater service effectiveness through targeting and reach, adding "where, when and who I am" to government services and essentially delivering a high level of personalisation.

The use of the mobile channel in e-government is also referred as mobile government or m-government. It should not be viewed as a replacement or a mere progressive stage of e-government. In most cases of mobile government implementation, the back office still runs through the spectrum of e-government

infrastructure for interoperability and cost effectiveness. Even though the front-ends of the mobile channel takes on different forms and functions, policymakers should not consider m-government as separate or additional means, but rather, as an integral component of e-government.

Figure 5.3 shows that the number of countries offering mobile apps and mobile portal has doubled from 2012 to 2014. For instance, 27 countries (14 per cent) offer mobile services in the education sector in 2014 as compared to 11 countries (5.7 per cent) in 2012 and 14 countries (7.3 per cent) offer mobile services in the environmental sector in 2014 as compared to seven countries (3.6 per cent) in 2012. The offering of mobile portal and mobile websites follows the same trend as seen in Figure 5.4. The number of countries with a mobile portal increased from 25 in 2012 to 48 in 2014. However, this trend is far from its potential and possible saturation particularly in bridging the digital divide of the disadvantaged and vulnerable groups.

Figure 5.3.   Percentage of countries offering mobile government services in 2012 and 2014
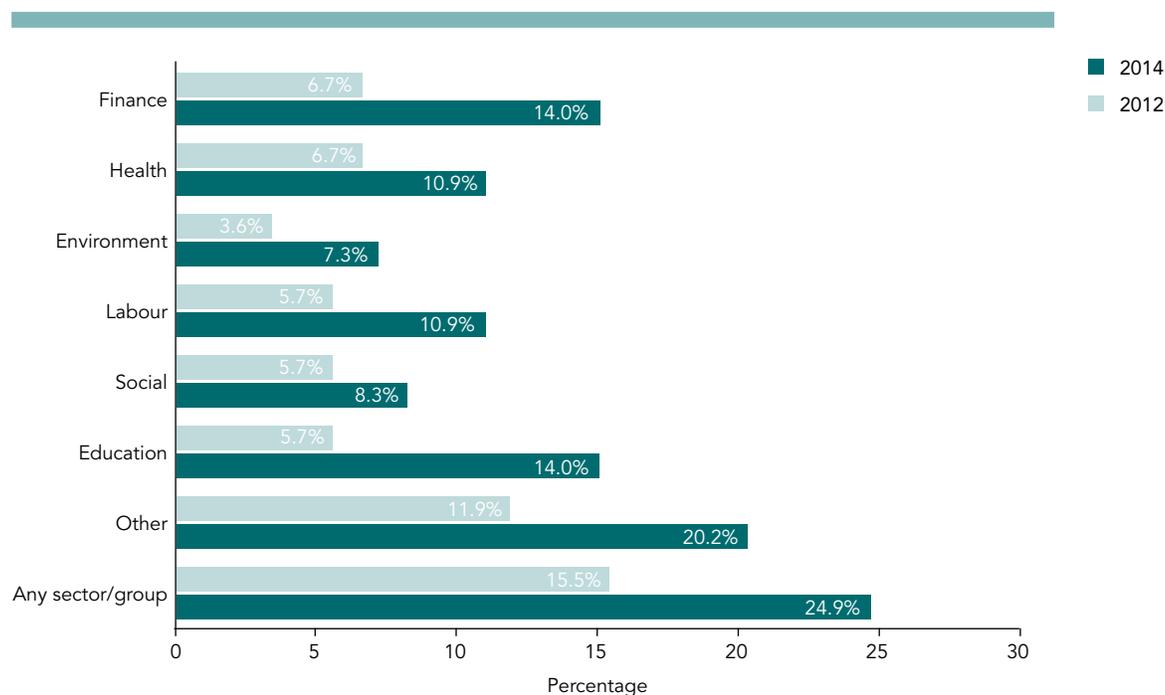
Among other unique features, mobile apps are context-aware and location-aware services. Whether it is searching for government information or taking part in e-participation initiatives, as evidence shows, the services that citizens will keep using are those that cut through the increasing confusion and clutter of public information like those available in some scattered government websites. With technologies like capacitive multi-touch screens that have changed the very nature of human-computer interaction, many e-government development pipelines from both developed and developing countries have embraced the growing role that mobile is playing in people's everyday lives and the potential of m-government to meet citizen needs to deliver information and services any-

where, anytime and on any device. Some countries have clearly recognised the enormous potential of mobile government. In the United States of America, the Obama administration ordered all federal agencies to begin making at least two apps as part of its recently unveiled digital government plan, in which it called for "a 21st century platform to better serve the American people."

Figure 5.4.   National portals offering mobile apps versus mobile portal/websites in 2012 and 2014
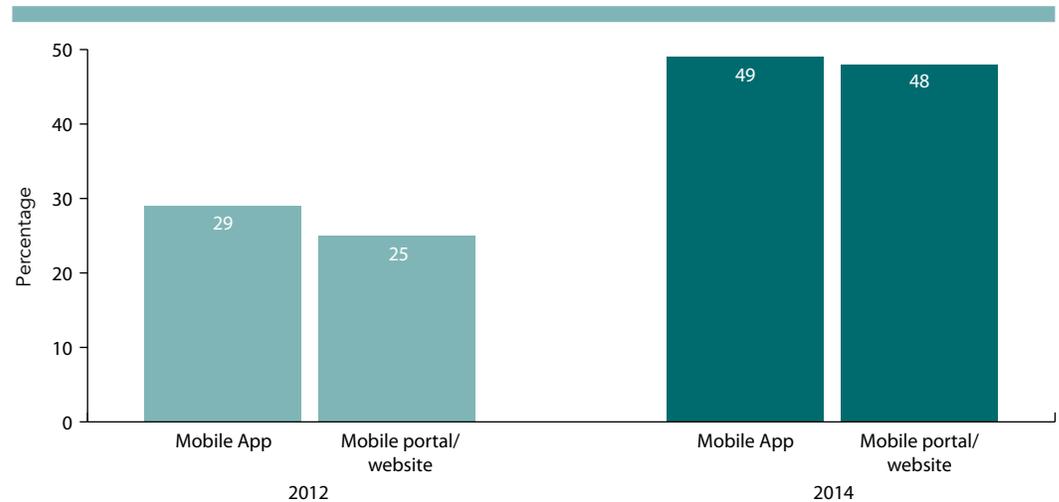
Box 5.4.   Mobile government for poverty eradication and economic growth

Mobile payment is an increasing trend particularly in developing countries. M-Pesa is one striking example of mobile money service in Africa that boosts employment and fights poverty. Started in Kenya, it allows users to make deposits and withdrawals, transfer funds and pay bills, offering flexible financial services in countries where banks and road infrastructure are still developing and yet meeting financial rules and regulations. The rise of mobile payment is expected with much of the continent's population living in rural areas, with little access to ICT infrastructure. With both sender and receiver owning or having access to a mobile phone, banking services are extended to all including disadvantaged and vulnerable groups. M-PESA has since expanded to include mobile airtime top-up, salary payments, interest-earning savings account and international money transfer. Mobile payment and mobile wallets will continue to gain traction in the next few years with technologies maturing and greater user confidence and acceptance.

Source: http://www.safari-com.co.ke/

Further recognizing that the transition to a mobile-led service delivery landscape is the future strategy, policymakers will need to consider and plan for strategic changes in governments' business models and that this requires significant re-thinking of the workflows in order to capitalise on reshaping e-government to deliver sustainable development objectives. It is noteworthy that in many coun-
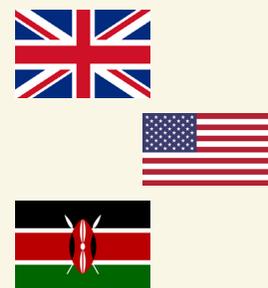
tries, several public sector related mobile applications are developed on the basis of open government data, among other data sources (see Chapter 8).

We are in the process of an explosion of mobile adoption but at the early stages of mobile government, particularly in developing countries and the least developed countries. However mobile is the new business as usual and e-government needs to go mobile.

Box 5.5. Mobile government for gender equality and social inclusion

There is growing evidence that women's use of Internet and mobile phones has a powerful impact on sustainable development, from connecting to health-care, to tele-working and securing income for family with e-banking. Those countries that have adopted a multichannel approach to service delivery will open options for greater gender equity and closing the gender divide. This is one area that has seen the largest gaps and also the highest potential of achieving development objective through e-government initiatives.

The United Kingdom's FixMyStreet and SeeClickFix of the United States of America, both are successful examples of a map-based citizen reporting platform that enables the public to report and track non-emergency related issues, via both web and mobile. Ushahidi, which means "testimony" in Swahili language, was first developed to map reports of violence in Kenya after the post-election fallout in 2008. The site, which now functions as a citizen reporting platform, has grown to become an important resource for citizen journalists in time of crisis like the Haiti earthquake and the Queensland (Australia) floods. The Ushahidi platform provides tools for communities to crowdsource real-time information like using web, email, social media and SMS text service.

Source: http://www.fixmystreet.com/; https://en.seeclickfix.com/; http://www.ushahidi.com/products/ushahidi-platform

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Box 5.6. Mobile government for environmental protection and disaster management

Mobile government is also increasingly deployed in environmental protection and disaster management system, where government plays the critical coordination role.

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), in the report of the Committee on Information and Communications Technology, reiterated the importance on the use of ICTs and mobile technology for disaster risk reduction. Bangladesh through its Disaster Management Bureau (DMB) is developing an SMS-based disaster warning system. The Japanese Government is leveraging on mobile technology to deliver emergency information such as evacuation instructions from local governments and reports from the current disaster system.

Source: UN ESCAP Committee on Information and Communications Technology, 2010 (E/ESCAP/CICT(2)/L.2), Information and Communication Technology–Enabled Disaster Risk Reduction in Asia and the Pacific
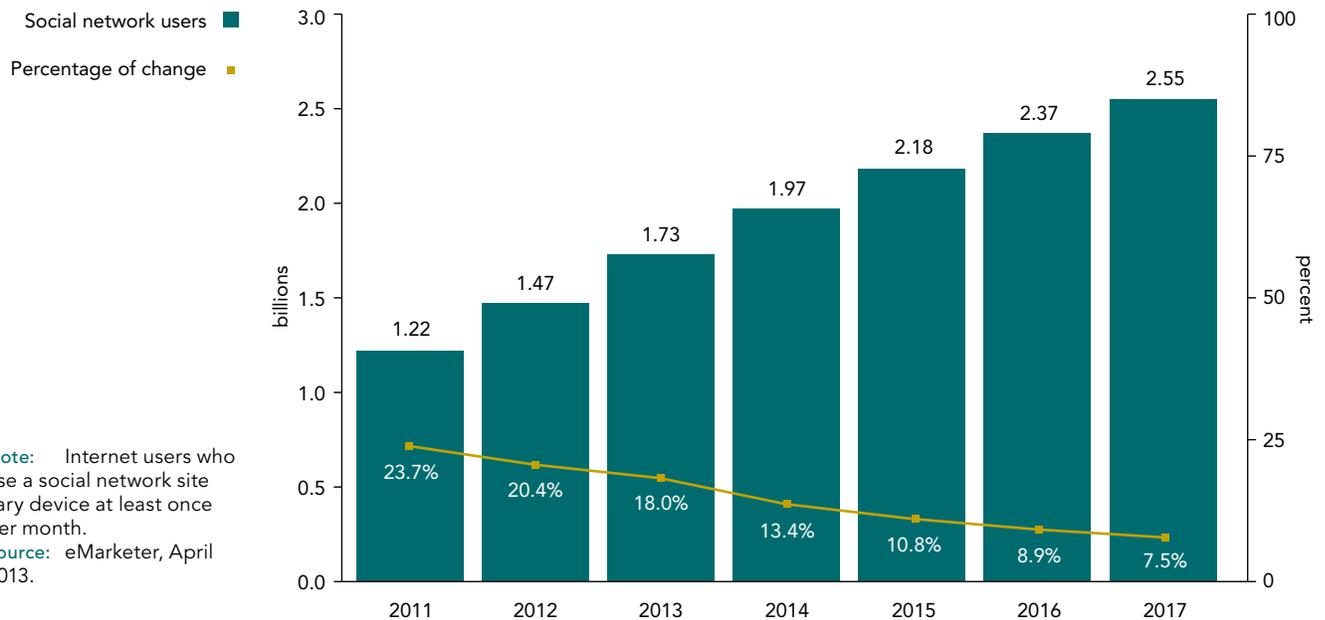
5.2.5.   Social media

One research study[18] predicts that by the end of 2013 more than 90 per cent of Fortune 500 companies will have partially or fully implemented an Enterprise Social Network. There is little reason why the public sector should not embrace this compelling trend in its service delivery.

The social media channel, which can be accessed through both desktop online and mobile devices, should certainly be explored further for public sector and communities to reach out to all their constituents particularly disadvantaged and vulnerable groups. Compared to other channels, it may be deemed a more cost effective channel.

Social media channel implementation does not require high investment costs as it typically rides on consumerisation and non-governmental platforms. Figure 5.5 shows the projected growth of social media through 2017 and Table 5.2 lists the social platforms used globally and in selected countries.

Figure 5.5.   Social media users worldwide (2011–2017)

Social network users ■
Percentage of change ■

Note: Internet users who use a social network site vary device at least once per month.
Source: eMarketer, April 2013.

In order to realise the full potential of the social media channel in e-government, a business transformation is necessary. Maintaining a Facebook page or Twitter account is relatively straightforward and easy, but will not in itself generate significant public value, cost reduction or increase in citizen trust. For example, e-participation through social media channel needs to be socially re-engineered, taking advantage of the real-time social networking attributes with human interaction and commitment of public servants including those at the senior levels, in order to fully and actively engage citizens in e-information, e-consultation and e-decision-making (see Chapter 3).

Table 5.2.   List of social media channels (order by general popularity)

Facebook	Google+	Youtube	Twitter	LinkedIn	Myspace	Pinterest| Tumblr (Global)
Qzone	Sina Weibo	Tencent	Youku	Tudou	RenRen (China only)
Vkontakte	Odnoklassniki (Russian Federation only)
Sonico (South American countries only)
Mig33 (Indonesia only)
Tuenti (Spain only)
Nate Connect	me2Day (Republic of Korea only)
Mxit (South Africa only)
Copains d'Avant (France only)
mixi (Japan only)
Hyves (Netherlands only)
studiVZ	meinVZ (Germany only)

Figure 5.6 shows that the number of countries using social media has more than tripled from 2010 to 2012 and increased by another 50 per cent in 2014. Following the same trend, as illustrated in Figure 5.7, 71 countries have explored the use of social media in e-consultation, indicating a 400 per cent increase as compared to 14 countries in 2012. These two significant trends are set to continue in the next few years. The challenge for governments is to identify the right "business case" for implementing a social media channel, one with a convincing argument and implementation plan that will enable governments to reduce cost or to provide a better service, or to deliver both of these aspects at the same time.

Box 5.7.   Lungisa ("fix it"): Fixing service delivery problems using social media (Cape Town, South Africa)

Citizens in the Cape Town region of South Africa can report delivery problems with water, electricity and other public services, using the reporting platform called Lungisa (meaning "fix it" in isiXhosa). The problems will be reported to the appropriate authorities and resolved via SMS, USSD, Mxit, Web and Facebook.

Over 1,500 reports using Lungisa have been filed and over 1,100 cases resolved (as of October 2013). Its partnership and collaboration with the City of Cape Town is reported as critical, and almost half of the reports have been resolved, largely by the City Council with the help of the Lungisa team follow-up monitoring actions.

Source: http://www.lungisa.org/

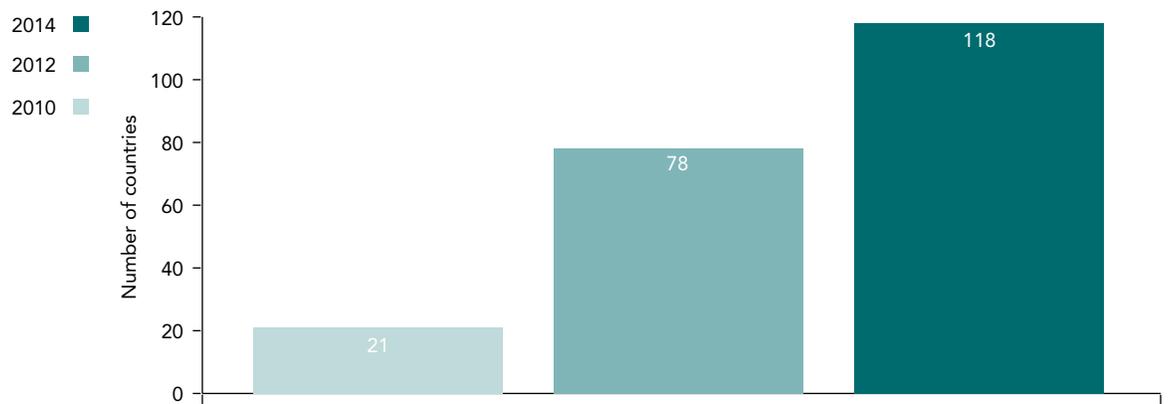Figure 5.6.   Number of countries using social media for e-consultation

2014
2012
2010

Figure 5.7.   Number of countries using social media for e-government
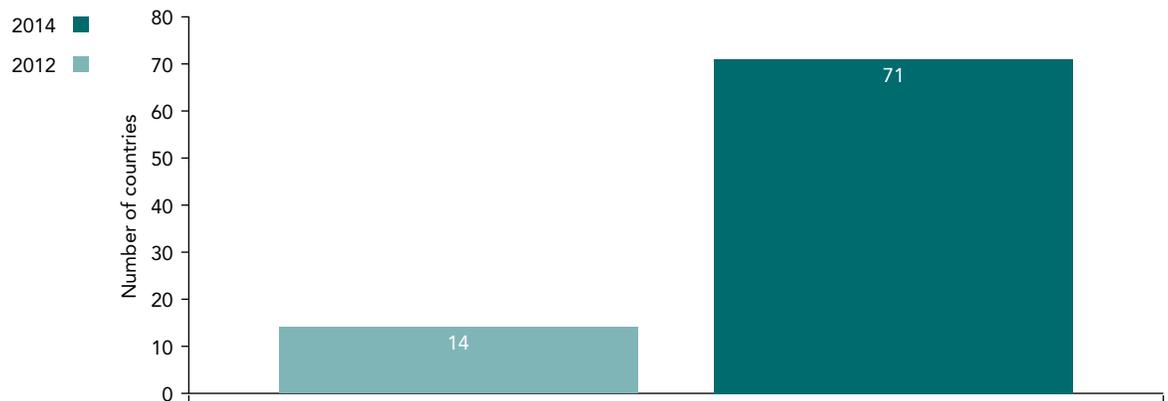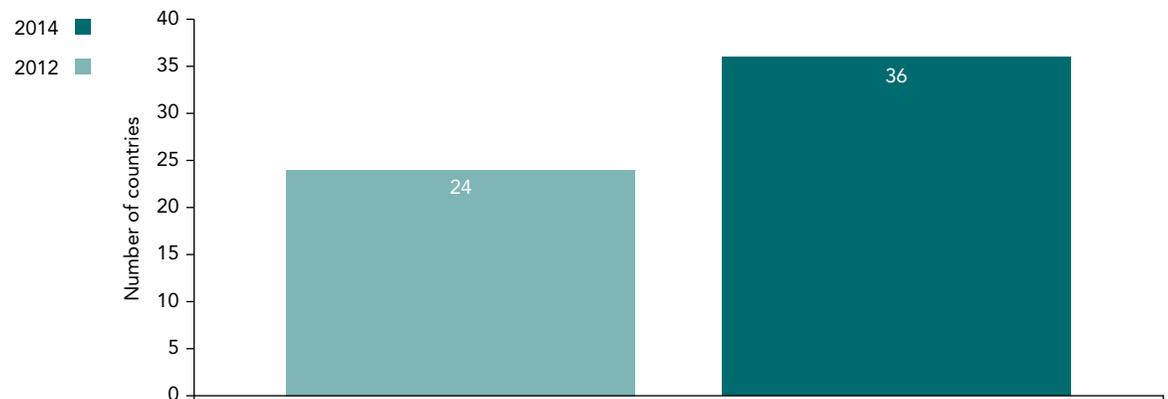
2014
2012

Figure 5.8.   Number of countries using public kiosks

2014
2012

5.2.6.   Intermediaries such as public kiosks

The 2014 *Survey* assesses whether government portals promote the use of public kiosks for their e-government services including those found in community centres, post offices and public libraries. There is an increase of the use of public kiosks from 24 countries (12.4 per cent) in 2012 to 36 countries (18.7 per cent) in 2014, as seen in Figure 5.8.

Public kiosks are public-access facilities providing free access to online services especially in marginalised or remote areas where ICTs are not prevalent. Funded by governments or supported through public-private partnerships (see following section), they normally serve several concurrent functions, including enabling communities and citizens to access new knowledge and information that can be incorporated into local knowledge and context, such as, among others, provision of information on employment opportunities, educational resources, agricultural information like planting techniques and disease prevention and other government information and services. Public kiosks also provide the means for intermediaries to assist citizens in accessing public information and services.

For increased social inclusion, the Singapore Government has set up CitizenConnect[19] Centres in all residential estates to assist citizens, particularly older persons and the illiterate to: (i) assist them to use government transactions online; (ii) help find information from government websites and (iii) contact government agencies on their behalf.

## 5.2.7.   Intermediaries through public-private partnerships

E-government and ICT projects are natural candidates for public-private partnerships.[20] Not only is there the potential for the private sector to finance the capital investment, thereby, freeing up public sector resources for other projects that have higher social returns, the private sector will also be able to lend its high expertise and operate the project possibly in a manner more efficient than the government itself.

Through public-private partnerships and crowdsourcing, the government can also reach out to a wider group of citizens including disadvantaged and vulnerable groups, such as those located in rural areas. According to the 2014 *Survey*, 45 deployed e-services through or in partnership with third parties such as civil society or the private sector including any Public-Private Partnership (PPP), as shown in Figure 5.9.

The Philippines Government has set up an online portal on public-private partnership[21] to attract private partners to invest not only in traditional infrastructure projects, such as power, transportation and water sectors, but also in non-traditional infrastructure and development sectors, such as ICTs and e-government itself.

Open government data and open standards have also changed the public delivery landscape, offering more opportunities for governments to collaborate with civil society and citizens for co-creation with the private sector or self-developed public service initiated by concerned citizens. Box 5.7 is one example on how the United States of America is embracing this channel.

Figure 5.9.   Number of countries with PPP e-service

45 countries
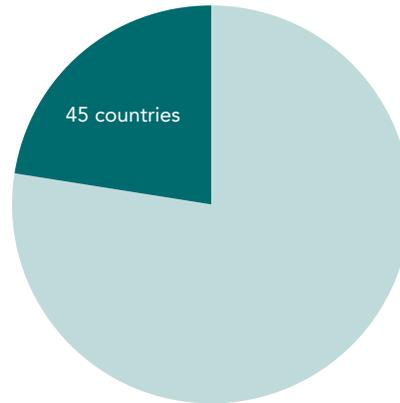
Box 5.8.   United States: promoting self-developed applications through open government and application interfaces (API)

One way that the United States is embracing mobile is through the release of hundreds of application interfaces (APIs) that can be used by private-sector developers to create new applications and services.

These APIs encompass government datasets such as home and business energy trends, real-time earthquake notifications around the world and the current weather on Mars transmitted from the Curiosity Rover. To facilitate the creation of new apps, each government agency has released its own developer pages and Data.gov launched a government-wide API directory so these resources are easier to find and use. These moves were further supported by President Obama's recent executive order and open data policy making open and machine-readable the new default for government data. The federal government also created the Mobile Application Development Program to help agencies launch mobile apps.[22]

5.2.8.   Counter and telephone services

In addition to emerging digital channels, counter (in-person), paper-based and phone (voice) services will remain as fundamental channels. Individuals who are not comfortable with new technologies may prefer to speak to someone in person or over the phone to resolve an issue while certain public services, such as issuance of birth and marriage certificates, still warrant some form of personal interaction for identity authentication and authorisation among other reasons.

Research in China shows that digital and traditional channels supplement each other, particularly among disadvantaged and vulnerable populations in rural areas.[23] Therefore, governments must provide multiple channels for different constituents, at times allowing them a choice of service access online, over the counter, over the phone, at a kiosk, or via mobile phone. Figure 5.10 shows that more than 80 per cent of countries (157 out of 193 United Nations Member States) indicate the full address of at least one government agency in its web portal, indicating the general acknowledgement of governments about the importance of maintaining

counter and paper-based channels. Similarly, voice has remained a fundamental channel of e-government services, especially among the poorest and low-income countries. One study shows that the phone remains an effective channel for solving problems whereas websites are more effective for getting information.[24]

Figure 5.10.   Number of countries showing full address of any government agency in its web portal, 2014

MORE THAN 80% OF COUNTRIES!

157

0

193
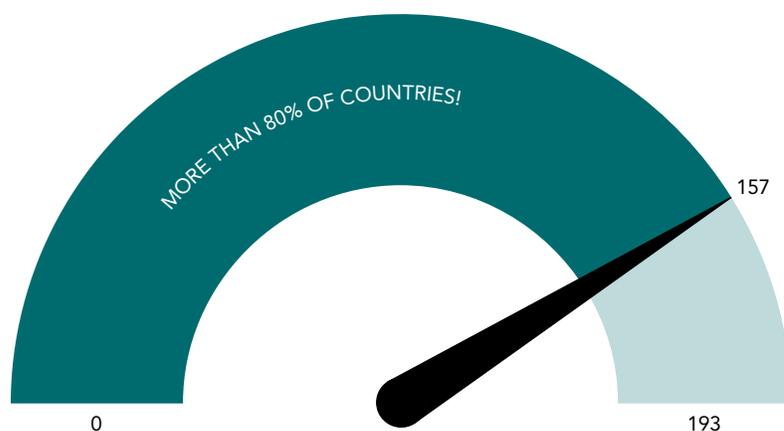
In Sri Lanka, through the 1919 Government Information Centre (GIC),[25] one could dial 1919 from any phone to access all services offered by the government. In many communities and states in Canada and the United States of America, a non-emergency telephone number 311 is a central, all-purpose phone number that provides quick and non-emergency services. The City of New York 311 Customer Service Centre of the United States was recognised and awarded the United Nations Public Service Award[26] in 2012. Several European countries such as Finland, Germany and Sweden have offered similar non-emergency phone service. One drawback is the high cost of maintaining a call centre and this is the main consideration when looking to replicate this service in developing countries.

5.3.   Building an inclusive multichannel e-government strategy

Multichannel service delivery mechanisms

When delivering public service solutions and services, governments must consider an optimal mix of channels to interact with and conduct business with citizens. Access issues, cultural and social norms, as well as government resources and approaches will play a part in this progression.

It is reported that half of the citizens (46 per cent) in the European Union go online to look for a job, file a tax return, register for a passport or use other e-government services.[27] This promising trend will deliver its expected results and impact provided if current users continue to trust and use online services and at the same time, access is provided

to a wider group of citizens. Therefore there is a need to embrace an inclusive multichannel approach as part of the national e-government strategy to ensure increased usage and citizen satisfaction while exercising caution to consider the possibility of increased cost and burden on existing resources (see Chapter 7).

5.3.1. Service principles of a multichannel approach

With multiple factors and choices, what are the service principles of a successful multichannel e-government strategy? Following is a list of selected questions that one should consider before setting metrics for a multichannel approach:

- Are the vision, mission and goals of a multi-channel approach well deliberated and clearly defined? What are the agreed performance indicators?

- What are the perceivable impacts of each channel option? Consideration should not only be given to achieving the aim of government for effective service delivery but also to meeting the needs and expectation of users. Accomplishments of desired key performance indicators will typically result in higher sustainability of the channel option in the longer term.

- Who is the target audience? What are the ICT characteristics of each channel option? Making a good match between these two elements is critical; it is essentially balancing what the technology does well, that is, managing a plethora of data in the most efficient way, with what people do well, that includes judgement, empathy, social context, etc.

- How can the diversity of channels be best managed to balance flexibility and control in a fast-changing and increasingly complex delivery landscape and meeting citizen needs?

- Should there be a smooth and robust transition of multichannel implementation, or should one undertake a strategic risk to leapfrog to the cutting edge?

- Should one mobile-enable all online services including "matured" ones like paying of taxes which is already prevalent in some countries?

- How should social media channel be integrated to the web and mobile channel? To what extent should government trust external social media platforms to take security and privacy issues into consideration?

- Should government leaders "mobile-enable" front-line public servants so that they could better address the needs of citizens? One approach is the embracing of BYOD (Bring your own device) for public servants but this measure entails complexities in consideration of the public servant capacity in addition to security and regulatory compliance concerns.

- What are the infrastructure frameworks and service standards? Is there a need for enterprise architecture if non-existent? Is there a role of an interoperability framework?

Among other things, one myth is that in today's information age, governments have to be at the forefront of deploying the most advanced online services offered through the latest technologies. One should not be misguided based on wrong premises such as the mere availability and possibilities of technologies. For instance, given that more citizens have access to feature phones in some developing countries, instead of considering state-of-the-art smartphone applica-

tions, SMS text service should perhaps be considered as the prime channel for its accessibility and more importantly, addressing the needs of the citizens. Tapping through a multichannel approach to meet sustainable development goals is not only an issue of understanding technologies; it is an issue of understanding the citizens, their concerns and needs.

For developing countries with little or no legacy in infrastructure or online processes, there is a potential to leapfrog by using available resources more effectively. Governments should develop services to leverage the benefits of the burgeoning wireless infrastructure including mobile broadband that is being deployed particularly in developing countries. Finally, the aim of a multichannel approach is not to utilise all channels but rather to optimise selected channels for specific service to deliver the best results and to achieve social equity by reaching out to all the population groups, including disadvantaged and vulnerable ones.

Table 5.3.   Service principles of a multichannel approach

| |
|---|
| 1. A multichannel approach is a nexus of strategy, workflow, data and technology; |
| 2. One ultimate goal is to leave no citizens behind to achieve social equity; |
| 3. Map channels to citizen needs, service functions, value propositions and available technologies; |
| 4. Innovate and evolve for best results and citizen satisfaction; no silver bullet exists and due diligence needs to be in place for effective service delivery. |

5.3.2.   Integration and optimization of channels

Taking into consideration the converging delivery landscape, there is no longer a clear distinction between traditional and new channels. For instance, even though all 193 United Nations Member States have some form of online presence according to the 2014 *Survey*, in order to reach out to a wide group of citizens, particularly those with access to mobile phones, there is now a need for national portals to focus on optimizing government websites for mobile devices (see Table 5.3 for service principles of a multichannel approach).

As e-government matures in each stage of its development, one important measure is for policymakers to select the right channel and service mix as part of a multichannel roadmap of their e-government strategy. Based on the 2014 *Survey*, as demonstrated by various national portals, different channels are selected for each maturity stage of the United Nations e-government model first adopted in 2003.[28]

While many countries face challenges in progressing to the third stage—transactional and the fourth stage—connected, it is important to recall that the first and emerging stage still plays a foundation role as information providing and sharing remains at the top priority need of citizens. This is best supported by a multichannel service approach. For instance, dissemination of public alerts can be done in a short period with reliability, such as through SMS text services and email messages, and many countries have put in place such a system as part of their disaster management and response system. Providing information through various channels will also result in citizens' trust of governments, thereby boosting the accountability and transparency of the public service.

Figure 5.11.   Service principles and framework of multichannel approach
to e-government delivery
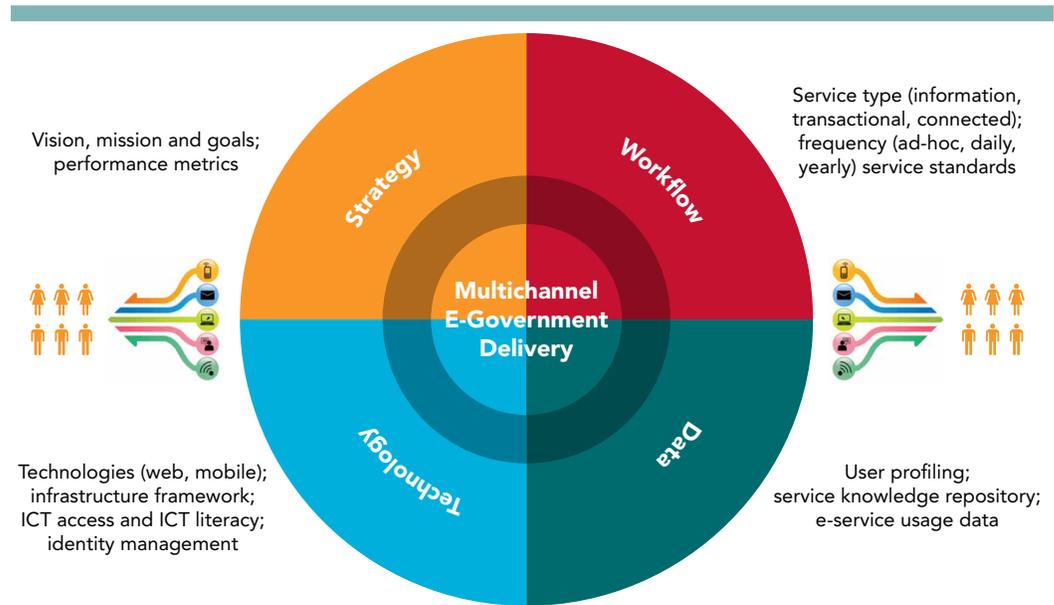
Box 5.9.   Channel integration and channel optimization

1) Channel integration in e-government

In the context of e-government, channel integration refers to strategies aimed at consolidating or connecting online services, either physically or logically in the use of specific channels, in order to provide quality services that are both accessible and flexible for the user and in a cost-efficient and effective manner.

2) Channel optimization in e-government

In the context of e-government, channel optimization refers to strategies aimed at taking the full advantage of selected channel(s) to deliver efficiency savings, improved customer experience or both.

The important need of channel integration and optimization can be illustrated through the view that channels are citizen touch-points and these touch-points should play a complementary and/or supplementary role to one another. For instance, during a visit to a government office, the citizen's past interaction with the office including through its online portal should be available as part of the customer relationship management system of the government office. No matter which channel is used Figure 5.13 shows a correlation between channel optimization,[29] online service and income (GNI per capita) of selected countries according to the 2014 *Survey*.

The last edition of the *Survey*[30] observed that countries with high income in general are able to enhance their e-government services through channel optimization. However, one can see through the 2014 *Survey* that some middle-income countries such as Armenia, Colombia, Turkey and Venezuela are also able to demonstrate channel optimization.

Figure 5.12. Channel use for each stage of the UN model of e-government development

Stages of e-government

Coordinated Channels:
Web portal, SMS text,
Mobile app, Mobile portal,
Public kiosk, PPPs

Integrated Channels: ALL

Channels:
Web portal, SMS text,
Mobile portal,
Public kiosk

Channels:
Basic website,
Public kiosk

Connected presence:
The way government operates fundamentally changes, and there is better coherence, integration and coordination of processes and systems within and across government agencies. Government transforms itself into a connected entity.

Transactional presence:
Two-way interactive applications provide citizens with opportunities for online, financial and non-financial transactions

Enhanced presence:
Greater sources of information, and e-tools and e-services

Emerging presence:
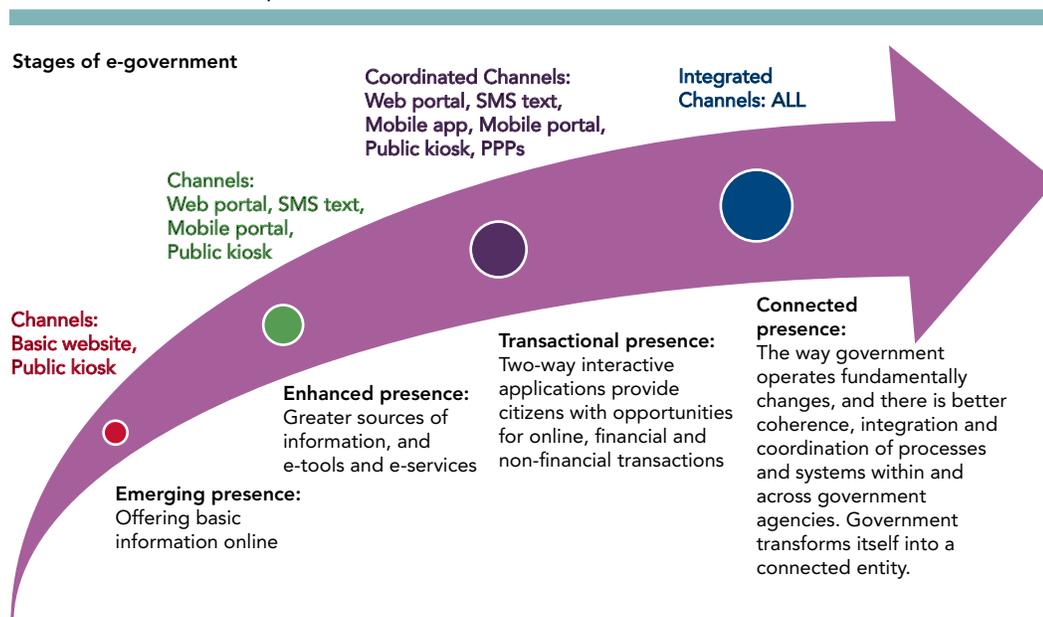Offering basic information online

Figure 5.13. Correlation between channel optimization, online service and income (GNI per capita; represented by bubble size) of selected countries
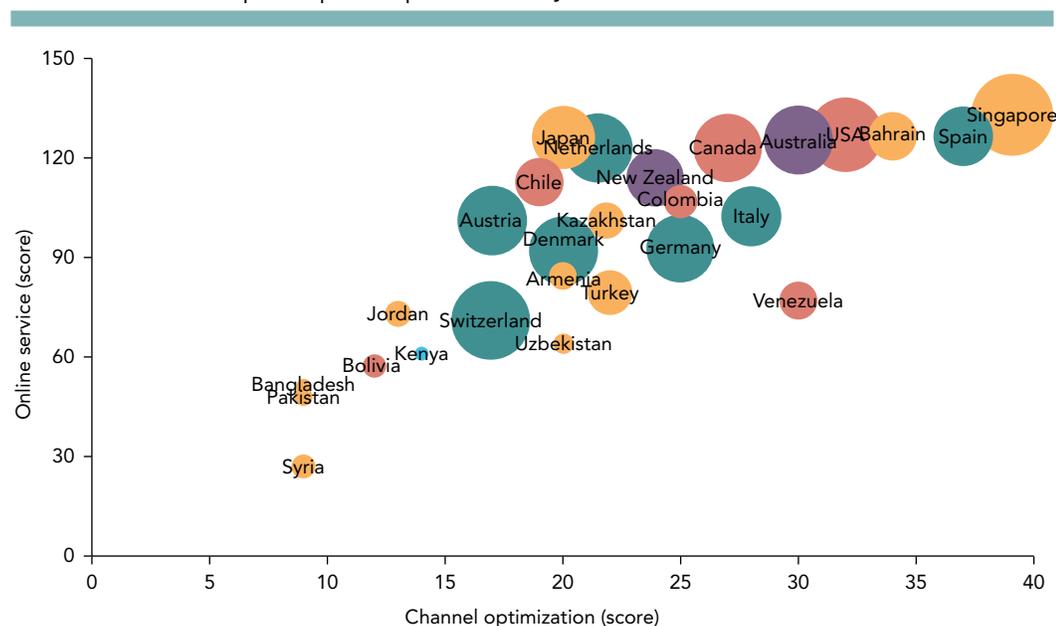

Figure 5.14 illustrates how countries are doing more to integrate channels. In 2012, 24 countries promoted the use of kiosks through their portal but there is an increase of close to 40 per cent with 36 countries in 2014. The number of countries promoting the use of phone payment increased by close to three-fold from 26 in 2012 to 69 in 2014.

A strategic national framework of e-government that encompasses multichannel service delivery is not an option but a natural progression of technological advancement in a society, particularly with the increasing trend of mobile devices.

Countries, including European and other countries like the United States of America, Japan and Republic of Korea, have all benefitted in meeting some economic, social and environmental goals by having an explicit multichannel plan as part of their e-government strategy. A whole-of-government approach in designing e-government strategy is essential in deciding the choice of channels, as there is increasing emphasis on integration and collaboration in public service delivery, as opposed to single-purpose silos in public administration (see Chapter 4).

Figure 5.14.   Illustration of integrated channels—web portal promoting phone and public kiosk
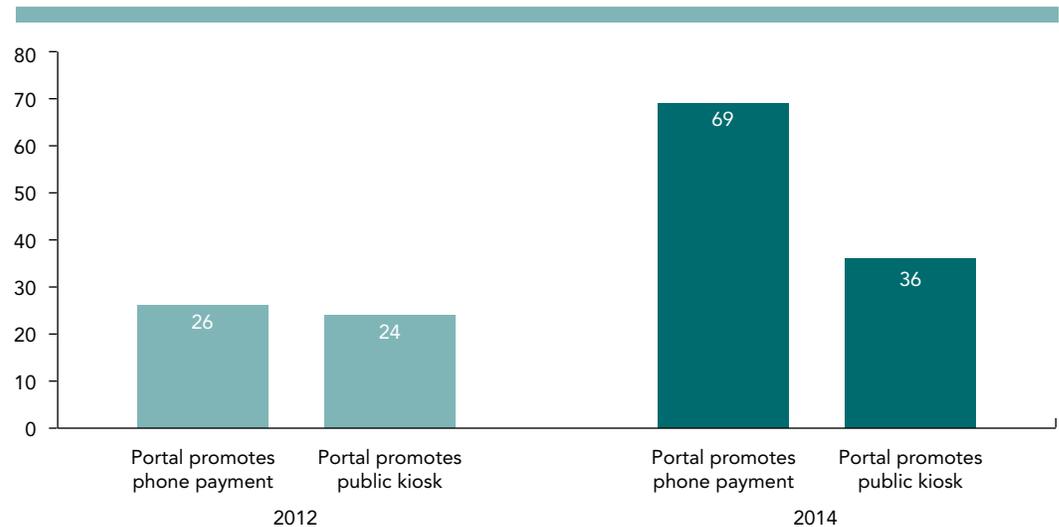
5.3.3.   Framework of a multichannel approach

Ideally policymakers should envision a longer term beyond one year for their e-government strategy. Some countries have embraced a two-year or three-year plan; however, a five-year plan, as demonstrated by several countries such as China, Denmark and others, may prove to be optimal, with evaluation at the mid-term to make any adjustment. As technologies mature and user base increases, such applications can scale up to achieve more diverse objectives or reach out to a wider audience. The enabling environment and various blocks have to be considered carefully while establishing a multichannel approach.

Setting clear objectives

In general, there are two broad objectives[31] of a multichannel approach. The first focuses on citizens' needs and the second focuses on making service delivery more efficient. As various studies[32] demonstrate, a multichannel approach does not mean that the needs of the citizen are addressed at the expense of the limitations of the service provider, or vice versa. One important consideration is to underpin reliable and cost-effective delivery of e-government service and at the same time maximise the flexibility to meet changing and emerging needs of citizens, including meeting the specific needs of disadvantaged and vulnerable groups. There is a necessity to define policies and standards to span service levels, different sectors and quality expectations.

User profiling and service personalisation

Through citizen demographics and taking stock of citizen needs, a good profiling exercise will unlock insights about service users, their capacities and specific channels to reach out to them. For social inclusion, more efforts should be made to the specific disadvantaged and vulnerable groups. It is recommended to undertake separate user profiling exercise for disadvantaged and vulnerable groups, including: older persons; people living in poverty; the illiterate; youth; immigrants; women; and persons with disabilities. One approach is for governments to do user profiling as a big data[33] initiative. Various data such as citizen demographics, actual usage of existing online services, and disparate data sources such as consumer use of social media, should be factored in the user profiling exercise. In addition to service user profiling, for some countries particularly the European countries, there has long been a trend to move towards service personalisation or customisation at the individual level, with the option for citizens "pulling" services they want via the channel of their preference and thereby "designing" their own unique service portfolio or dashboard, as in the "My Page" examples of Denmark, Netherlands and the United Kingdom.

Implementing and integrating different channels

Governance of channels in itself has to go beyond defining a strategy and provide a strong steer on developing in-house capacities which can support the implemented channels. Embracing the diversity of the service delivery ecosystem, governments may explore cloud sourcing and cloud computing and green ICT for implementation of integrated channel service delivery. A successful implementation should be followed through with effective management and marketing of the channels in order to reach out to the target groups, particularly the vulnerable ones, or to entice citizens into using the most cost efficient channels based on the service type, frequency and complexity of interaction. Refer to Chapter 7 for analysis of different ways to promote the different channels, including through training, promotional events with outreach through mass media, etc.

Monitoring, evaluation and review

As is the case for any project implementation, the monitoring of usage and critical evaluation of results is important for its own sustainability. With proper monitoring and evaluation and leveraging data with key performance indicators, governments can make evidence-based decisions on the change of their e-government strategy or prepare for the next term plan of their e-government strategy. There should be a consideration of e-discovery, for example, that policymakers can be prompted to consider new areas for mobile apps implementation through an automated process initiated by increased usage of mobile websites.

5.4. Challenges and opportunities of the emerging channels

The delivery landscape of public service changes with the technological trends and emerging needs of citizens, both of which are continuously evolving. Over the past few decades, we have witnessed a reduced reliance on channels such as the television and radio, and we are now witnessing changes brought about by disruptive technologies such as mobile devices and social media.

Challenges of a multichannel approach will become increasingly complex and intractable. Some strategic risks are inherent and henceforth their negative impact should be seriously considered when planning and implementing pubic services.

5.4.1. Challenges of the multichannel approach

Maintaining a single consistent citizen view and experience

Although it is evident that a multichannel approach will reach out to more citizens as compared to a single channel approach, the former will also result in loss or fragmented information and misalignment of service standards. In advanced countries, citizens are also expecting that e-government services will be supported for the wide spectrum of multi-screen devices that they own. It is also likely that citizens will request more information through their mobile devices including smartphones and tablets while visiting a government office. Such citizens will be more informed about government services and this would in turn speed up the service request, both online and offline, saving both public resources and citizen's time and effort.

With converging channels and a diverging range of consumer devices, there is an increased blurring of what belongs to one channel and what does not. For instance, users could be assessing websites through mobile but miss out on information and get frustrated if the websites are not optimized for mobile devices. When users move from one channel to another channel, there is an expectation for seamless flow of information between the channels. This in itself is a challenge for data flow within one agency. For services that concern different agencies, this challenge is even more apparent.

This challenge may be overcome through channel synchronization including tapping on common infrastructure such as use of cloud computing, deploying a unified knowledge base and setting service standards to aim for a "single citizen view" such that one will access the same information with consistent standards regardless of channel selection. One approach, as observed through trends in some countries, is the citizen-driven approach where one can have a consistent view of own data that is also controlled and personalised at the individual level, for example through "My Page" or a personal dashboard.

Addressing security and privacy concerns

The increasing use of mobile channels has resulted in the increasing vulnerability of sensitive information. While service providers have to exercise caution in ad-

dressing this concern, there is also a need to educate citizens on how they can re-duce this risk, as users may be the primary cause for certain threats. For instance, citizens should adhere to the advice of selecting a good password following best practice and accept two-factor authentication, should that be offered.

Governments must conduct due diligence in ensuring citizen data is protected such as through secured system access, user identification, data protection and other critical security measures. When putting in place such measures, other factors like cost effectiveness, speed-to-market delivery and integration of new channels to legacy systems including through cloud services, should also be considered.

Getting ahead of technologies

Due to the complexities and possible high costs involved for some channel im-plementation, an overly ambitious implementation of a multichannel approach may lead to failure points such as unused ICT infrastructure and lack of in-house expertise to provide service maintenance or user support. Managing the chan-nels does not equate to managing technologies but it entails more. There is a need to understand the different challenges beyond technologies while under-standing and addressing citizen needs.

Evaluating BYOD (Bring your own device)

There needs to be a cross-device approach or a multi-device user context for some services. One approach is the embracing of BYOD (Bring your own de-vice) for public servants, as well as for citizens and businesses, and these entail complexities in the context of the capacity of public servants and other concerns such as security and regulatory compliance. Half of the world's organizations and private companies are expected to embrace BYOD—how public servants can tap on mobile devices, for example, in providing front line services is a challenge for the public sector. There are also some views that BYOD is not ready for main-stream adoption in e-government processes.

Other challenges

Language diversity is a challenge in many countries and language considerations should be included as part of the user profiling exercise in deciding the most ap-propriate channels.

5.4.2. Opportunities of the emerging channels

Dissecting the mobile wave, we note that there are two major categories of de-vices—smartphones and feature phones. There is a high potential for developing and least developed countries to tap on the mobile channel, including SMS text service on feature phones and mobile apps on smartphones, since these coun-tries have been historically limited by poor or non-existent fixed communications infrastructure. Figure 5.15 shows that there is an expected high growth potential of smartphones with the convergence of technologies, with at least three-fold increase of the smartphone users over the next few years.

Figure 5.15.   Global smartphone versus mobile phone users in 2013
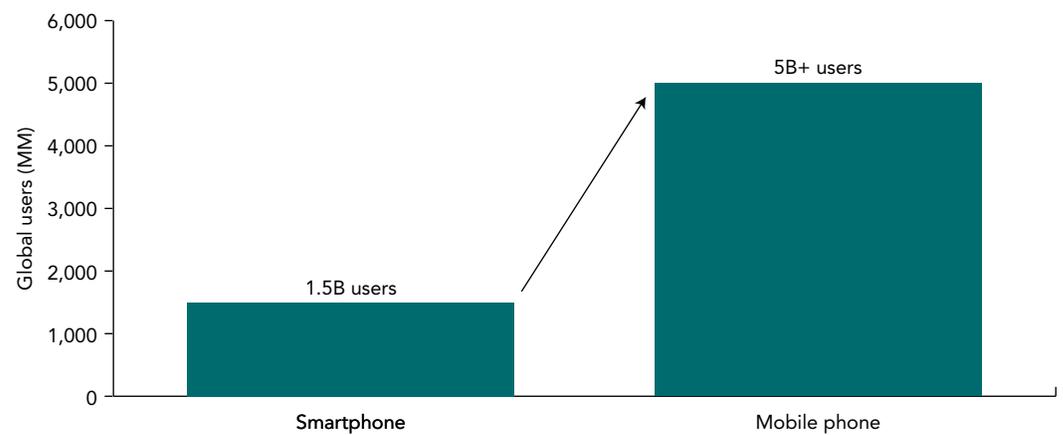
The utilisation of the mobile channel, including through tapping the SMS capability on feature phone, is far from saturation. Even in developed countries, where the mobile market is close to saturation, the adoption of mobile government is relatively low. Likewise, successful adaptive applications of mobile government remain limited. As illustrated in Figure 5.16, in 2008, there was higher use of SMS text but in 2012, there were more countries using mobile apps and portals as compared to SMS text and the trend continues in 2014. As observed through the 2014 *Survey*, there are 49 countries offering mobile app/websites whilst 32 countries offering the SMS text service. Through the estimated figures, we expect a continued growth of the number of countries offering SMS text service, mobile app and mobile website as part of their e-government offerings. The mobile channel is relatively more cost effective and it is also flexible and personalisable for both "pull" and "push" services, stimulating the innovation of many new business models which especially people living in poverty, the self-employed and small-medium enterprises can benefit from.

Some governments have driven a policy direction with high priority for the mobile channel. In June 2013, the Government of the United Arab Emirates decided to change the name of their e-government initiative to Mobile Government (m-government), signalling the government's priority on the delivery of government service to the public through their mobile phones, anywhere and round-the-clock.[34]

M-Government will also offer countries the opportunity to tackle a number of issues—such as those related to the digital divide—which remain a critical factor in the take-up of online services.[35] Mobile is driving change and the impact of mobile government will be ground-breaking in the next few years.

5.4.3.   Hybrid and integrated channels

When two or more channels are involved in a single service provision, a hybrid channel is evolved. Tight integration is a necessity to ensure seamless user experience. Some examples of hybrid channels are as follows.

Figure 5.16. Countries[36] offering SMS text and mobile web/app services
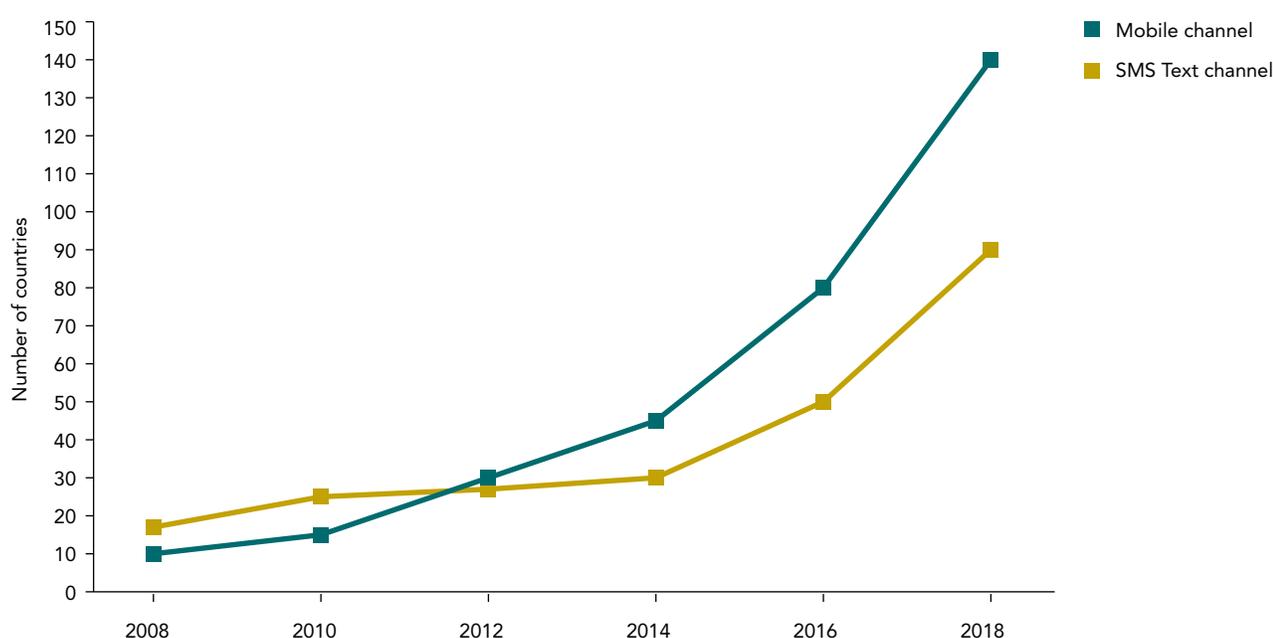
Integration of voice to web channels

It is understandable that some citizens prefer to speak to a person for a specific or any service. This is particularly the case for some disadvantaged and vulnerable groups such as older persons and the illiterate. One new approach is the introduction of integrated "online live chat" or "virtual assistant" to online services so that users can be assisted in a more personalised manner. One example is the portal of the Mexican state of Guanajuato, where virtual assistants are presented as a cartoonlike character to answer custom questions asked in a written or even oral form.

At the same time, service delivery may be extended from voice to web channels, for example, by referring citizens who call public hotlines to access web information about public healthcare or to a mobile application for public housing. Effective management of service across traditional and digital channels is essential to a good citizen experience.

Gamification

Gamificaton[37] is relatively new but it has the potential to engage youth in public affairs particularly through sustainable development objectives. One good example is the application "OPower"[38] that has seen success in countries including France, Canada, Australia and New Zealand, United Kingdom and the United States of America. It encourages people to become more responsible about their energy consumption by utilizing gamification to enable people to use less energy through collaboration with utility companies to provide households with data on how much energy they are consuming, how they match up with neighbours, and if they are close to any new milestones. Another solution, m.Paani,[39] aims to solve the clean-water problem in developing countries through an innovative loyalty program. In

gamification, a good blend of information service and online community engagement will result in greater citizen satisfaction in their interaction with the government which in turn enhances public service delivery. More potential is seen for gamification in emerging channels such as mobile devices and social media.

Citizen's unified mailbox

Building on the self-service expectation of citizens, an extension of the email channel takes the form of a unified communication system between governments and citizens. The Government of Denmark, through a legislation adopted in 2012, pledged that by 2014 all citizens would have a secure digital letter box ("Digital Post") in which they would receive all emails from public authorities. All citizens would also be able to authorise family members to access their Digital Post on their behalf. Singapore has also implemented "OneInbox" in 2013, which is the official Government platform where individuals and businesses can receive all their government-related correspondences electronically, in place of hardcopy letters.[40] This service was launched based on findings from surveys and polls that most individuals and businesses prefer to receive electronic correspondences instead of hardcopy letters. Singapore's OneInbox aims to provide a trusted and guaranteed delivery of correspondences and make it easier for individuals and businesses to file and track their correspondences from a single aggregated platform.

Mobile Government Office

With the use of mobile technologies, a physical government office could be set up to provide services to rural villages. The Australian Government Mobile Offices are mobile offices providing a range of government payments and services, making it easier for people in rural communities to conduct their business with Centrelink,[41] targeting older persons, students, jobseekers, persons with disabilities, farmers and self-employed.

5.5. Conclusion

With increasing user demands to access public services from anywhere, anytime and the practical needs to reach out to everyone in society, including disadvantaged and vulnerable groups, new forms of online, hybrid and integrated channels have emerged over the years, transforming the way online services are delivered to citizens. From traditional citizen touch points, like counter and voice services, to evolving forms of online web portals, from SMS text services, mobile portals and mobile apps to social media, an inclusive multichannel approach is seen to be a relevant solution for the sustainability of e-government itself since it allows governments to utilize a multiplicity of the channels to reach out to disadvantaged and vulnerable groups and find smart ways to increase usage of online services.

The web portal, mobile channel and social media channel will be main drivers to reach a wider user base and bridge the digital divide with the exponential uptake of mobile devices and increasing user base, particularly in developing

countries. The mobile channel is essentially one that augments other channels by reaching out to new users but, at the same time, it is a pervasive one that is in close proximity to its users and is action-oriented, meaning that one uses the mobile phone to "do something". The use of social media and social analytics are both complex and fragmented but it has strong potential to reach disadvantaged and vulnerable groups, such as indigenous peoples and youth. Counter (face-to-face), paper-based and telephone (voice) services will continue to play essential roles in public service delivery, especially to reach out to people living in poverty and in low-income countries.

The challenge is to manage the balance of need to support these platforms while encouraging citizens to take advantage of more cost effective digital channels. Public service delivery can, therefore, be reinvented through a smart blend of channel selection and integration, optimizing the characteristics of different channels with the citizen's profile and having a consolidated view and analysis, business needs, cost efficiency, channel performance and social analytics as metrics to govern and streamline the e-government development process.

Given these findings and conclusions, the following recommendations can contribute to an effective and inclusive multichannel approach to public service delivery:

- Profile e-government users and map effective channel(s) to citizen groups and needs. For more efficient and effective delivery of public services, it is more important to understand the needs of citizens that one is targeting and to provide services that address specific citizen needs through a multichannel approach. With a good user profiling exercise, policymakers may then focus on the capacities, both the supply and demand ends and subsequently exploit fully the power of mobile and other channels without leaving out citizens, particularly disadvantaged and vulnerable groups with limited capacities or limited ICT access. Training and upgrading of ICT skills of citizens should not be ignored.

- Build key integrated infrastructure, deploy a unified knowledgebase, set common standards and invest in training to facilitate multichannel provision of public services. Government Chief Information Officers or equivalent officials should plan for an overall ICT infrastructure with emphasis on ubiquity, among other factors. Setting common service standards help address service consistency and interoperability needs. Taking into consideration data security and user privacy, ubiquitous integrated cloud-based multichannel management may be tapped with the spread, availability and reduced cost in its offering.

- Be innovative; learn and replicate good practices from around the world to integrate and optimise channels. Sticking to tried and tested channels will no longer suffice in today's connected information age. Online services should be reinvented through a multichannel service approach. Careful deliberation is needed, for instance, on how email notification and/or SMS text notification can be best integrated into the workflow of an online or mobile application. Governments need to constantly explore and experiment, adapt and hone an integrated multichannel e-government strategy.

• Set indicators and measure impact of channels through usage statistics and social analytics; adapt to emerging citizen needs and technological advancement. The goal of setting indicators and measuring channel analytics is to measure public service performance for promoting data-driven decisions rather than subjective ones for identifying problematic issues or areas of growth. Metrics such as business needs, channel cost and channel usage, as well as intangible ones, like channel perception and citizen satisfaction, should be determined with clear expected accomplishment statements and realistic goals. With increasing knowledge and technological ability to analyze information from disparate sources, governments are able to make wiser use of the plethora of data they collect with predictive and preventive analytics to continuously evolve e-government development to deliver more public value.