



ERICSSON

# NETWORKED SOCIETY CITY INDEX 2013

APPENDIX 3 CASES





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# CASE STUDIES: INTRODUCTION

This section presents case studies for the 31 cities included in The Networked Society City Index 2013. The purpose of the case studies is to provide the reader with a deeper, more qualitative understanding of the link between ICT maturity and sustainable urban development.

The cases have been chosen to present a broad perspective of sustainable urban development in relation to ICT solutions in cities. The cases show a whole range of successful initiatives taken that involve the use of ICT to improve: various aspects of

society such as health and democracy; certain aspects of the economy in terms of business support; or aspects of the environment in terms of traffic-related issues, energy efficiency or pollution in cities.



## PARIS

### **Tranquilien – predicting passenger load on the Paris region public transportation network**

In June 2013, the start-up Snips and SNCF (France's national state-owned railway company) held a press conference in Paris to announce the release of the Tranquilien app. Tranquilien is a mobile transit app that enables people to check in advance how crowded trains are due to be, so that they can choose the one with vacant seats. This not only gives commuters more comfort, but also helps to reduce delays, alleviate peak hours by spreading passenger load across more trains, and generally increase the overall efficiency of the network. Users can also contribute to the system by reporting directly on the app just how crowded their train is.

Snips has created an algorithm that can predict how many people will be boarding and disembarking from trains at each station throughout the day – and all this up to a week in advance. The model uses contextual information such as the work calendar, weather forecasts, the socio-demographic context of stations and so on. In order to build the algorithm, Snips aggregated more than 10 different data sources, including, for example, open data (from OpenStreetMaps, GTFS or General Transit Feed Specification schedules, weather reports, socio-demographic and economic data); private data (historical passenger count, historical train equipment); and user data (such as app check-in information and search queries).

Following app trials involving 2,000 beta testers, it was launched publicly and raised an enormous amount of interest among commuters, technology experts and journalists. The app is initially only available for iOS, limiting the number of potential users to 600,000. Already by the end of day one, 20,000 commuters had used it. After a week, the app had led to more than 10,000 check-ins, 2,000 tweets, more than 200 press articles, five radio interviews, three items of TV coverage, and had won a national open data award.

## LONDON

### **Sharing patient information**

The Southern Health NHS (National Health Service) Foundation Trust has started using a secure electronic patient record (EPR) system, which enables the sharing of patient information across a whole region's Community and Mental Health NHS Trust organizations.

The EPR system, known as RiO, is now available to 110,000 health care professionals across London and the south of England, having been rolled out to 62 sites. A new feature of the system, RiO2RiO, allows professionals working at the various organizations to view patients' medical histories, even if their records

are held by another NHS trust. This means that if a patient has recently moved, they do not need to wait for their medical records to be transferred. The information sharing function is said to be subject to rigorous security and privacy controls.

This new system has been extremely positive both from a clinical and patient point of view. For example, it is possible to see at a glance what immunizations, health checks and blood tests have been carried out and, if necessary, to add these to the local record through a quick click of a button. This reduces work duplication and improves the accuracy of the patient's health record.

In the first mandate between the British Government and the NHS Commissioning Board (which now goes under the operating name NHS England), a commitment is made that, by March 2015, "everyone who wishes will be able to get online access to their own health records held by their GP." The mandate also commits the Board to ensuring that "everyone will be able to book GP appointments and order repeat prescriptions online." The mandate says that by 2018, the NHS will be going "paperless."

## STOCKHOLM

### **Stockholm Royal Seaport**

Stockholm Royal Seaport (SRS), a large urban development district, is one of 16 areas in the world chosen to participate in the C40 Climate Positive Development Program. The goal of the SRS project is to create a sustainable, climate-positive district and an attractive living and working environment.

The three overall environmental targets for SRS are for the district to be free of fossil fuels by 2030, for carbon emissions to be reduced to less than 1.5 tonnes per person by 2020, and for SRS to be adapted to future climate changes. The environmental profile of the district, which was developed with cross-sector cooperation, includes five focus areas: new technologies for energy use; environmentally compatible transport; recycling of water, waste and energy; lifestyle issues; and adaptation to a changing climate.

SRS provides unique opportunities for collaboration with a range of actors and stakeholders, including the municipality, development companies, utility providers, IT companies, and different user categories representing living, education, healthcare and so on. To promote the innovative environmental technologies and creative solutions in the district, the City of Stockholm has started building Stockholm Royal Seaport Innovation – an arena that links research, industry and the public sector.

A project called Smart ICT for living and working in

SRS has been designed to develop an open and generic ICT infrastructure that will be able to offer trans-functional solutions relating to infrastructure, logistics, e-health care (care in the home), energy, media and entertainment. A shared infrastructure increases the opportunities for both competition and collaboration between different actors, and enables the citizens to actively participate in the development of new applications and services.

### Open city network

Stockholm has the world's largest open city network for broadband communications with 1,200,000km of fiber-optic cable connecting around 80 percent of the city's households and nearly 100 percent of the companies based there. The network is owned by Stockholm City through IT infrastructure company Stokab, which builds, maintains and leases network connections. As only unused optical fiber connections are leased, users can choose their own network service provider. The network is open to all parties on equal terms.

For nearly 20 years, the City of Stockholm, through Stokab, has been investing in and expanding open, competitively neutral fiber connections for any interested customer. The municipal authority has considered Stokab a public infrastructure company, much like a public organization responsible for roads. The deployment of Stokab's initial network was financed by loans backed by the City of Stockholm, and the network connected mainly public institutions and universities. The network began to expand rapidly as more and more private businesses started purchasing dark fiber circuits. The City of Stockholm wanted to optimize resources, increase availability, keep prices down and reduce traffic problems. Investment in the city-owned fiber network has led to significant economic benefits for communities, companies and individual citizens.

Stockholm has chosen to view the ICT infrastructure as something that should be accessible to anyone and delivered by a neutral player in order to create competition.

All those who need fiber can design their network structure themselves, rather than a dominant player providing a network that is designed to meet its own service-delivery needs. Also, the cost for a broadband provider to reach customers is lower because the passive infrastructure (representing around 80 percent of total investment) is already there. Even the price of dark fibre – the basic ICT infrastructure – is significantly lower in Stockholm than in other comparable cities. This has a strong effect on the business climate, as the possibilities for data communication are crucial for business development.

## OSLO

### Coordination of digging projects

Oslo's "digging project" (Graveprosjektet, or KGrav) allows contractors or other interested parties that need to lay cables in the ground or improve the road conditions to make their respective project applications online. The applications are treated electronically. The projects are published on a website, and all parties can follow the process and coordinate their plans accordingly. The initiative allows for better coordination of digging projects and helps to prevent utilities from digging up the same roads at different times.

The following three types of services are on offer:

- > electronic application and submission of messages about any digging project (for contractors) with subsequent treatment online. The application is "intelligent," meaning it includes links to maps, digging sites and so on
- > binding and well organized cooperation on data-exchange in a common structure: collaboration between actors in the private and public sector
- > a "detection service" that is used by entrepreneurs.

The collaboration has resulted in a service of great value to public and private actors alike. It allows for enhanced efficiency and has facilitated the process both for the community and the citizens. Estimates show that the project saves between NOK 13 and 23 million (between USD 2.2 and 3.9 million) each year in Oslo – half of it in the public sector. Since this is a municipal service, it has great relevance and potential reuse value throughout Norway.

The initiative has received the Norwegian Award for promoting the exchange of experiences and knowledge of ICT in the management, visibility and support of the innovative use of ICT. The solution ensures secure data exchange and does not involve discrimination against new and small-scale participants. The coordinating authority offers various forms of guidance and support on a permanent basis free of charge.

## HELSINKI

### Forum Virium Helsinki

In Helsinki, actors from the public and private sector have formed Forum Virium Helsinki. Its mission is to create internationally competitive digital services for consumers and clients in the Helsinki Metropolitan Area through cooperation between corporations, public institutions and citizens.

Smart City, one of the project areas, includes Helsinki Region Infoshare (HRI), which is a service that will make public-sector data available to citizens. The service is provided through cooperation between Helsinki and other cities in the region. HRI is open to the public and available to all users free of charge. HRI comprises

more than 1,000 databases, including statistics, maps, city financial data and location information. It gives a comprehensive and diversified outlook on different urban phenomena, such as living conditions, economics and wellbeing, employment and transport. The information can be used for both commercial and non-commercial purposes. The project includes building a web service for speedy, easy access to open data sources. For example, users can download information and use it in decision making and in their applications, or develop entirely new services based on the information.

The European Commission has awarded HRI the European Prize for Innovation in Public Administration. Another example of promoting the use of open data is the annual open data innovation contest Apps4Finland. The aim is to look for creative and inspiring ways of utilizing open data. After the competition, the web-based tools and developed collaborative practices can be utilized and further improved by anyone. During the past five years, the competition has produced practical solutions to everyday problems in areas such as health and welfare, energy, public transportation and so on. The main organizers of Apps4Finland are Forum Virium Helsinki and the Finnish Association for Online Democracy. In 2013, Apps4Finland will also partner with the City of Helsinki, searching for solutions that will make decision-making in the city more transparent and participatory. The apps resulting from the Open Helsinki – Hack at Home program will also be entered into the Apps4Finland contest.

## COPENHAGEN

### The green capital

Copenhagen is a frontrunner when it comes to the environment. The aim is for the city to become the world's first carbon neutral capital by 2025, and for 50 percent of commuters to travel by bicycle by 2015. In June 2012, it won the European Green Capital Award for 2014.

To support its goals, the city has developed a municipal strategic climate action plan, where 50 initiatives are rolled out to meet the 2015 mid-term goal of a 20 percent reduction in CO<sub>2</sub>. To find out how far the Danish capital has come in achieving its environmental ambitions, the City of Copenhagen has set up Copenhagen's Green Accounts – a page on the authority's website that provides an overview of developments.

The city has placed public-private partnerships at the core of its approach to eco-innovation and sustainable employment by working closely with companies, universities and organizations to develop and implement green growth. Its North Harbour project, for example, includes a "Green laboratory" that will focus on eco-technologies, a model that can be transferred to other towns and cities.

Examples of sustainable city solutions in Copenhagen:

- > Increased mobility through the implementation of integrated transport and cycling solutions has reduced congestion significantly and improved citizens' health.
- > Cleaning the harbor has led to attractive urban areas affording an improved quality of life, a boost to local businesses, as well as the creation of jobs and generation of revenue in the area.
- > Landfill has been reduced to just 1.8 percent of the total waste produced, and incinerated waste generates power for the district heating system, which heats 98 percent of housing in the city.

## MOSCOW

### IT integration at educational institutions in the city

A number of basic programs for the integration of IT are being carried out at Moscow schools. Through the Comfortable School program, parents can enrol their children in school and for extra-curricular studies, such as sports, art and music schools, online 24 hours a day.

Parents can also receive comprehensive information about their children's attendance and academic performance. With 300 schools already providing SMS notifications, 500 more schools are about to be connected to this system.

Meanwhile, the Competent School program provides for a set of new-generation electronic textbooks. This program helps to develop an individual approach to educating every child.

Through the Healthy School program, every student is given an electronic medical card containing comprehensive information relating to their health and vaccination status. Their individual medical situation can therefore be taken into account.

The Kind School program supports education of children with disabilities. Its aim is to make the necessary provisions for distance learning, with children studying at home with the help of ICT.

In accordance with the Safe School program, four video cameras have been installed around the perimeter of every school. There are plans to increase the number of cameras in use.

The Open School program provides for each school to move to a new standard site, which will contain information about the school. In addition, a city register of education specialists is to be compiled. By the end of 2015, 100 schools are expected to have adopted a unified system of financial and management accounting.

## ISTANBUL

### Istanbul in motion

There is a pressing need to make Istanbul's public transport system more efficient. It is important to optimize the traffic flow according to the needs and expectations of citizens, which requires knowledge about people's habits and demands. Istanbul in Motion is a project started by Istanbul Ulaşım (the city's public transport company) with IBM and Vodafone. The idea was to improve public transportation through the collection of data about the travel routes taken by citizens. While a similar project has run in a small North American town with only bus transportation, the Istanbul project is the first one to be established in a very big city where different modes of public transportation are provided.

The technology draws on transit data, geo-spatial information, census records, points of interest information and data from mobile phones and smartphones. The telephone data is completely anonymous, so no individual's privacy is compromised. By tracking the movements of thousands of people from place to place and correlating this information with time and the speed of travel, the system understands the mode of transportation people are using and knows where they are traveling to and from.

The city's transit authority is using the system to help design bus routes connecting to the city's new subway lines. The goal is to reduce opex by 40 percent, meet 37 percent more demand, reduce average commuter time by 60 percent and per-traveler combustion emissions by 40 percent.

## SINGAPORE

### Singapore – GPS-based Electronic Road Pricing system

Singapore has had an Electronic Road Pricing (ERP) system to manage road congestion since 1998. The system is based on a pay-as-you-use principle where motorists are charged when they use priced roads during peak hours. At the moment, there are about 80 electronic overhead gantries – or bridge-like structures – in and around the city. The rates are different depending on local traffic conditions on a particular road or the time of the day. The system allows for the reduction of traffic on the roads and as a result, the traffic congestion in Singapore – which is costly to individuals and society alike – is not as severe as in many other cities of a similar size.

Since May 2012, Singapore has been testing an alternative solution to the ERP system, based on GPS (Global Positioning System), in some parts of the city. The companies to develop the technologies include Kapsch TrafficCom, MHI Engine System Asia and NCS, ST Electronics (Info-Comm Systems) and IBM

Singapore, Watchdata Technologies and Beijing Watchdata System.

The main advantage of the new GPS-based ERP system is that there is no need for physical gantries, and it allows distance-based congestion charging. This would be a fairer and economically more efficient system than the current one, where motorists are charged based on the number of gantries they drive through, rather than on the distance traveled on a congested road. Furthermore, at present, motorists who enter a congested road after the gantry points are not charged, even though they also contribute to the congestion of the road.

The GPS-based system also allows for better traffic control, catching speeding vehicles, for example, and spotting illegal parking or tracking hit-and-run drivers. However, the system has been criticized for enabling authorities to keep track of the travel patterns of citizens – for example, political opponents.

If the GPS system is fully implemented, vehicles must have new charging equipment installed – an onboard unit, which detects the position of the vehicle and its travel route. Based on the information, a fee will automatically be charged depending on which route is driven. Another possible payment structure is to start charging as soon as the engine is turned on and the vehicle is driven off, regardless of the chosen route.

The Land Transport Authority in Singapore, which is in charge of the project, is now assessing the results of the trial. It is not yet known when the new system will be implemented. However, if the system is put to work, it can change the travel habits of about 1 million drivers in Singapore.

## JAKARTA

### Jakarta – free Wi-Fi in public spaces

Internet access costs in Indonesia are among the highest in the world. These costs hinder the economic development of the country, as Indonesian companies do not use the internet to innovate and promote trade to the same extent as businesses in many other countries.

To solve the problem, the Jakarta city government has provided free Wi-Fi in several public spaces in the city since 2012. These hotspots are meant to contribute to the development and advancement of Jakarta as a metropolis, and are part of the plan to turn it into a smart city. One of the aims is to make it possible for people to work from home and not spend so much time getting from one place to another. According to the Indonesian Transportation Society, residents of Jakarta travel 3.4 to 4.4 times a day, which results in traffic congestion. If residents could reduce the number of journeys they take by one, and do business on the phone or internet, 25 percent of journeys could be reduced.

While in the beginning, the project included only a few Wi-Fi hotspots in some parks and at certain bus stops, now the Jakarta administration and state telecom provider PT Telkomunikasi Indonesia have installed more free Wi-Fi access points in the city's public spaces and included some of the main streets. The aim is to provide free Wi-Fi access throughout Jakarta within the next five years.

The project is a result of collaboration between the local government and three fiber-optic communication providers. According to the municipal government, it has not cost the authority anything, but is rather compensation from the companies that have installed fiber-optic networks in the city.

Based on an agreement with the Jakarta administration, the fiber-optic companies will each make two core lines available for public access. Of the six core lines, four are for public use and two are to serve private companies. The initiative has inspired authorities in other regions in Indonesia to look into developing similar programs.

### **Jakarta Smart Card**

Another initiative undertaken by the city of Jakarta in 2012 was to provide underprivileged students with a smart card. The aim was to ensure that no child is unable to go to school because of school expenses. The smart card works like an ATM card; the student enters a PIN code to withdraw money to cover school-related expenses such as transportation, food and textbook costs. The card grants students up to the equivalent of USD 25 a month. In 2013, the goal is to distribute 332,000 cards to students engaged in all levels of education in both private and public schools.

The card is issued by the provincially owned Bank DKI. To prevent misuse of these cards, schools are expected to monitor what their students use them for.

## **SEOUL**

### **Smart metering**

In South Korea, the Seoul government has introduced smart meters for home, office and factory owners. The aim is to reduce the city's total energy use – including the consumption of electricity, water and gas – by 10 percent.

As opposed to home energy monitors, smart meters can handle two-way communication between the meters themselves and the central power system, as well as gathering data for remote reporting. Through the smart meter, customers receive information about what they pay for power at various times of day, as well as advice on how to reduce energy costs. Utilities argue that this will lower overall energy use and reduce fluctuations in demand since people are encouraged to avoid consumption during peak hours.

The smart metering initiative is part of “Smart Seoul 2015” – a project launched by the local government in June 2011 to maintain the city's reputation as a global leader in ICT by using smart technologies for increased sustainability and competitiveness. However, the purpose of Smart Seoul is not only to implement as many smart technologies as possible, but also to encourage a more collaborative relationship between the city and its citizens.

During a national smart-metering project called the Integrated Automatic Meter-Reading Pilot Program, which was completed in 2008, over 80 percent of participants said they checked their smart meters at least once a day. About 60 percent also said they found the pilot program useful in helping them to reduce their energy consumption. Plans are afoot in South Korea to install smart meters in half of the country's households by 2016, which is expected to save the costs of building a nuclear reactor.

This case is a clear example of all three “bottom lines” – including the social, economic and environmental dimensions – being taken into account within the scope of a single ICT project.

## **TOKYO**

### **Smart and sustainable city in the suburbs**

Plans are underway to create a smart city on the outskirts of Tokyo in a partnership between Panasonic, Accenture Japan, the real estate firm Mitsui Fudosan, and Tokyo Gas, among others. This will be the first smart city of this kind to be built from scratch. The “eco-burb” will integrate Panasonic devices like solar panels, storage batteries and lightbulbs based on LEDs (light-emitting diodes) along with air conditioners, washing machines and under-floor heating systems that can communicate with each other to maximize energy efficiency. Tokyo city will also promote smart mobility solutions.

Panasonic initiated the smart city project in 2009 in the suburbs 40km southwest of Tokyo to find a new use for this closed factory area. After the multiple blackouts following the shutdown of nuclear power plants in Fukushima in 2011, there has been a greater public demand for non-nuclear or renewable energy. A number of companies, named above, have joined Panasonic to help run the project.

In a model house, Panasonic has installed ceiling LED lighting that comes on as the natural light from outside fades. For central coordination, the house features a portal that can be viewed from any terminal so residents can monitor and adjust internal electricity use. To maximize energy efficiency, the ordinary planning process has been inverted for the project, allowing Panasonic to consider things like how to install solar power systems and storage batteries first, and then to

come up with the best layout in terms of wiring and architecture. The project involves all kinds of ICT, and addresses all the economic, social and environmental aspects of sustainable development. If successful, it may become a model town that can be replicated in Japan's earthquake-damaged areas.

## SHANGHAI

### Air quality mascot

The Shanghai Environmental Protection Bureau (EPB) recently updated how it communicates daily air quality via its website and Weibo (the Chinese equivalent of Facebook) account. Shanghai has a well-developed website with information about air quality, including real-time pollution data in terms of emissions concentrations and Air Quality Index (AQI) readings. The website provides a bar chart of AQI readings for the past week, and even provides access to historical AQI data for PM10 (respirable particulate matter up to 10 micrometers in diameter), sulphur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>). The EPB has now introduced an air quality mascot – a cartoon drawing of a girl with pigtails – who communicates what the various levels of pollution on the normalized AQI mean. She smiles when the air quality is good, looks worried as pollution levels rise, and sheds tears when they are something to cry about.

The aim is to raise awareness of the adverse health effects of poor air quality on the city's population. People who follow this indicator on a daily basis will be able to take precautions, wearing a face mask, for example, or avoiding being outdoors on days when the air quality is bad. The indicator is relevant for all people in Shanghai, but especially for those who are extra sensitive, such as people with asthma.

This initiative could have a direct effect on people's health and life expectancy. It constitutes an innovative approach to communicating information about pollution to city dwellers.

## BEIJING

### Easy banking

As a newcomer to a country, opening a bank account is often one of the first steps you have to take. For those who want to use local banking services in China, the official website of the Beijing Government includes a special portal named Easy Banking. The service offers a step-by-step guide to creating an account, exchanging currency, receiving money from abroad, and so on. The service has a hands-on approach and is well suited for newcomers to China.

Foreigners can open bank accounts in China, which is rather convenient if you are planning to be in the country for a long time.

The case is mainly connected to the economic dimension, as it facilitates entry and work for foreigners in China.

### China Unicom improves broadband speeds in Beijing

A broadband connection scheme has been launched by China Unicom to increase speeds and make 4Mbps the slowest connection in the capital city. Given that Beijing's average broadband speed before the upgrade has been 3.5Mbps, the change will be significant. Chinese telecom operators will phase out lower-speed packages in response to the government's goal of having 75 percent of broadband users on connections of 4Mbps or better by the end of this year.

A report by Qihoo 360 published in April 2013 found China's national average bandwidth to be 3.14Mbps. A separate report by China Daily noted that at 3.5Mbps, Beijing's average internet bandwidth was ranked fifth in the whole of China, behind Shanghai at 4.7Mbps, Macau at 4.32Mbps and Jiangsu at 3.93Mbps.

The initiative will improve the broadband experience for individuals and businesses alike, and hence help with both the social and economic dimensions of urban sustainable development.

## MANILA

### Manila social networks rescue service

The typhoon season in the Philippines usually means heavy rains and flooding, and people often need to be evacuated and to be given food supplies. Locating individuals in need is difficult, not least in a storm. However, people in the Philippines are among the most social-media-savvy in the world. Social networking sites such as Facebook and Twitter are therefore valuable tools during rescue operations.

Just like in 2012, when Typhoon Ondoy 2 hit Manila, social networks such as Facebook and Twitter are used to coordinate efforts and rescue missions. Using hashtags such as #rescuePH for rescue calls, #floodPH for breaking news and #reliefPH for relief aid, Philippine residents can quickly signal for help and inform each other about people in need.

In 2012, the RescuePH project team – who coordinate rescue efforts – used a Google Docs spreadsheet to organize information. A crowdsourcing website has been created where citizens can feed in relevant information. It features a "Click here if someone you know needs rescuing" button. There is a list of people who need help and an interactive map to show their location. Users are requested not only to tweet their reports, but also to enter the relevant details directly onto the website to assist recovery operations.

Reporters have been corresponding with fellow journalists via Twitter and Twitter's direct message

system, highlighting how social networking and mobile phones have become a vital link in the rescue and relief chain. People stranded on rooftops have been text messaging for help, while many Filipinos have used Facebook and Twitter to post updates and supplement government and media coverage of the floods and rescue work. Social networking has become an important tool, allowing people to contact the government, and to let friends and relatives know if they are fine.

This case is an interesting example of how ICT and social media can be used to disseminate information quickly and safely. It also shows how social media can be used to aid collaboration between city officials and citizens in need.

## DELHI

### **Participatory policing platform**

The authorities in Delhi are struggling to discipline reckless road users in the city. The traffic police have set up a page on Facebook, enabling commuters to file complaints against bad fellow drivers, with still images and videos serving as photographic evidence. In the two months since its launch in May 2010, more than 18,000 fans had registered on the account. Residents and road users had uploaded over 3,000 pictures showing defective license plates, bikers without helmets, overloaded buses and trains, illegally and badly parked vehicles and police officers breaking rules. According to traffic police data, more than 22,000 offenders had been prosecuted by July 2012 as a result of information recorded on the Facebook site.

While civilians keep posting crucial information about violations, the traffic police are also active on the social networking site, recording details of their follow-up action. The traffic officials now have staff dedicated to monitoring the Facebook posts. Officers say this has increased their workload, but also facilitated the police's response to traffic-related issues.

The page has generated awareness about road safety in the city. It has also helped people to disseminate important information among road users, such as traffic updates and advice on the transport situation and road conditions in the capital. The Facebook initiative is part of what the police call their department's mission to encourage public involvement in traffic management.

### **Delhi's e-initiative**

To facilitate Delhi residents' involvement in policing and public safety, the city police department has developed an e-initiative on its website in collaboration with Microsoft.

The Know Your Police Station program involves an interactive map to help residents find the route to the nearest police station. There is feedback designed to

increase the active involvement of residents, who have the opportunity to help the police identify problem areas and take appropriate measures. The idea is to engage the public in providing information on crime- and accident-prone areas, and on organized crime such as gambling and the illegal sale of liquor.

Furthermore, users have access to all of the Delhi Police station house officers' (SHOs') profiles, including their photographs and contact details.

The e-initiative is part of what the Delhi Police calls a "progressive, innovative and responsive policing policy," and is a response to residents' complaints about not knowing the jurisdiction well.

The Delhi Police recently launched a new initiative for women in distress, who can download a new kind of software that enables them to contact the police by simply pressing a particular button on their mobile phone. Besides being connected directly to the police emergency center, five to six other numbers chosen by the user are dialed automatically on the touch of this button. The police are running pilot tests on the system involving a few mobile phone users.

Both these initiatives have been launched to increase safety in the city and improve access to and communication with the police. If successful, they should lead to increased trust in the city police and local government.

## DHAKA

### **Increasing road safety with mandatory GPS**

The Bangladesh Road Transport Authority has made the installation of GPS (Global Positioning System) mandatory in all motor vehicles in Dhaka. This is part of a government initiative to increase road safety and prevent carjacking incidents.

In Dhaka, 50-60 vehicles are stolen or hijacked every month. By using a monitoring tool, the Dhaka Metropolitan Police can now trace stolen vehicles equipped with GPS, which is expected to reduce the number of carjacking incidents significantly.

### **Mobile banking at Dhaka's post offices**

Dhaka clients can now pay bills without going to the post office. The Bangladesh Post Office (BPO) has introduced a banking service called Post e-Pay for transactions to be carried out using a mobile phone. The launch of the service marks the outset of electronic person-to-person transactions in Bangladesh, and includes the ability to carry out money transfers, bill payments, cash deposits and withdrawals. The charge for each transaction is BDT 3 (three Bangladeshi taka or USD 0.04), and there is no interest accrued on deposits.

The mobile banking service was initially introduced in

seven divisional headquarters in Dhaka, but will be launched at all 9,800 post office branches over time with the help of countrywide mobile operators. The two types of technologies that will be used for mobile banking are SMS and internet.

The BPO first launched two branchless banking services. The longest established service, which was launched in March 2010, is the Electronic Money Transfer Service (EMTS), which allows customers to send money instantly from one branch to a friend or relative who can pick up the funds at 2,000 of the 10,000 post office branches. EMTS should soon replace the traditional money order altogether. BPO staff use either a web interface for those with internet connectivity, or a menu on a specially equipped mobile phone to key in information about the sender and receiver of funds. There is also an option for a free text message to be sent to the recipient notifying them of the transfer.

This is an example of a public-private-partnership project (PPP), where the private party's involvement has been much more than just a network provider. It has worked closely with BPO in the areas of technical consultancy, platform deployment support, PO branch training and rollout, marketing communication and awareness creation.

## KARACHI

### Cyber pride

Despite widespread intolerance toward homosexual people in Pakistan, a new underground gay scene has developed in the country's biggest city Karachi with the help of social media. Through a smartphone app with GPS technology, homosexuals can now localize other gay individuals who have online profiles, and arrange meetings with them.

There are thought to be thousands of homosexuals online in Karachi every day. Yet, it is not common for gay couples to be open about their sexual orientation. The country is governed by sharia law, which penalizes homosexual acts. As a result, gay men and women often enter into heterosexual marriages and live a double life.

Defying the Pakistani Government, which blocks sites that display "objectionable and offensive" material, the country's lesbian, gay, bisexual and transgender (LGBT) community recently launched a website called Queer Pakistan. The site provides virtual support for the LGBT community, including counseling and networking. It is also designed to raise awareness of sexual health in a country where the topic is rarely discussed in schools or families. However, the impending threat of closure by the Pakistan Telecommunication Authority may put an end to the site.

In a country where the mainstream media shy away from

unconventional topics such as homosexuality, the app and Queer Pakistan website provide a safe space for members of the LGBT community in Karachi to make their voices heard. The long-term goal is to change attitudes toward homosexuality in the whole country.

## MUMBAI

### Smart meters halve water loss

The use of smart meters in India's most populous city, Mumbai, has led to a 50 percent reduction in wastewater. Previously, up to 700 million liters of water were wasted or lost owing to leaking pipes every day. The water meters have been supplied by Itron Inc, a global technology company and the largest maker of metering devices in the US.

The water system in Mumbai provides tap water to about half of the 16 million residents in the city area (the entire metropolitan area has around 20 million residents), leaving the rest of the population without a supply. Around 50 percent of the city's drinking water is lost along the way, compared with an average of 34 percent worldwide and 10 percent for the most efficient water systems.

The use of smart meters has helped to improve supplies and to provide water to a larger proportion of the population. Measuring the flow of water has helped the Municipal Corporation of Greater Mumbai to discover leaks. Since a value has been put on a shared resource, this has also helped the authority to discourage waste.

There is a range of residential, commercial and industrial water meters available. Compared with ordinary meters, smart water meters are connected to a grid and can be read remotely. They also come with a software program for managing the data.

Urbanization is accelerating and McKinsey has predicted that by 2030, global water consumption will increase by 40 percent. Mumbai is no exception and technical solutions like smart water meters will be necessary to ensure steady water supplies in the future.

## TAIPEI

### Smartphone apps for better service in the city

In Taipei, the capital of Taiwan, the city government has launched 16 smartphone applications providing information ranging from city administration to transportation, tourism, employment, education, environmental protection, disaster prevention and culture. The aim is to facilitate access to, and use of, citizen services and government information through mobile technology.

One example is the Taipei Hiking Trail App, winner of the 2012 Taiwan Healthy City Innovative Achievement

Award. It offers navigation, positioning and a rescue service as well as information about hiking trails around the city. In case of emergency, the user can press an alert button, and the system will determine their geographical position and send an SOS message to the nearest alarm center.

Other examples include: the Disaster Prevention app, which includes weather forecasts and information about typhoons and water levels; Taipei Good Parking, with information about parking lots using GPS; and Taipei Free, which offers information about free Wi-Fi spots in the city. The Health Taipei app offers the user a personal health consultation and provides medical advice, as well as tips on weight loss and quit smoking programs.

This new collaborative approach is an example of how ICT solutions can benefit society and increase collaboration between the city government and its citizens.

## HONG KONG

### Web accessibility for the elderly

Since the internet is the main channel used for disseminating information and providing services to the public, its usefulness would be significantly enhanced if the contents were made accessible to the widest possible audience, including people with disabilities.

The Hong Kong Government has developed a dedicated portal for the elderly and, through an open process, appointed the Hong Kong Society for the Aged to develop, manage and operate it. Launched in June 2010, the portal, called eElderly ([www.e123.hk](http://www.e123.hk)), is designed to enable easy use and navigation. It constitutes a user-friendly one-stop channel to information based on the needs and interests of this specific audience. The portal not only encourages the elderly to acquire internet skills to engage with information and expand their horizons, it also enables closer communication with younger family members.

Topics featured on the portal include lifestyle, health, learning, services, privileges and news. It also provides information on care for the elderly. The portal is enhanced continuously to include interesting content and current market offerings. The Hong Kong Society for the Aged has run the portal on a self-financing basis since May 2013.

The Government of the Hong Kong Special Administrative Region has also set aside funds to encourage the wider adoption of ICT by the elderly. It supports projects to enhance people's ICT knowledge and skills, as well as their access and receptiveness to the use of ICT, with a view to improving their quality of life, broadening their social circle and building up better intergenerational relationships in the longer term. In order to promote the more widespread use of ICT, the

government has launched the Smart Elderly Awards to show recognition for elderly citizens who use ICT actively in their daily lives.

The government has commissioned the Hong Kong Society for the Aged to manage the award scheme and coordinate with centers and academies for the elderly across the territory to nominate eligible individuals for the awards. A series of ICT-related activities – including training programs, promotion days, practical talks, and sharing sessions on learning resources – has also been organized.

## CAIRO

### Tweet translation for non-Arabic speakers

A new Twitter service provides the automatic translation of tweets from Cairo leaders into English to help international users follow political developments in Egypt. The translation service is attached to verified Twitter accounts, including those of former president Mohamed Morsi, Vice President of Egypt Mohamed ElBaradei and Arab Spring activist Wael Ghonim. This has allowed a wider audience to read tweets originally written in Arabic during the protests in Cairo.

Twitter has provided a list – called *egypt2013* – of the 63 Egyptian account holders whose tweets it is currently translating. Ghonim has more than 1.1 million followers, and Tahrir News, another member, has more than 900,000 followers.

The translation tool is not completely accurate. A tweet posted by President Morsi on July 2, 2013 was translated as: “Mohammed Morsi confirms its attachment to the constitutional legitimacy and rejected any attempt to break them and call the forces armed pull its ultimatum and rejects any dictates dakhlihaokhargih (sic).”

Only the accounts with the greatest following in Egypt are being translated so far, but this service is helping people around the world to understand and keep up with what is happening in Egypt. To access translations, users click on “view translation” in the top right-hand corner of the tweet box.

Twitter adopted the auto-translation service, which is provided by Microsoft Bing, as a way to broaden its global user base. Experiments with the translation tool began in July 2013 with European languages such as Italian, French and Spanish before extending it to Arabic. Today, several more languages are included, such as Turkish, Swedish and Filipino.

This kind of ICT service can help activists and bloggers to tell the world about what is happening. Apart from spreading live information about events we would not otherwise hear about, it can also bring a local perspective to major news items.

## JOHANNESBURG

### Smart waste dumping

Pikitup, the waste management service used in Johannesburg, South Africa, has introduced a smart card system for customers at some of its landfill sites. The system includes automatic license plate recognition and billing components hosted online.

Through a sensor that correlates visitors' cars to their card numbers, it is now possible to keep track of visits to the landfill sites. In addition, fleet owners can view their vehicles' movements in and out of the landfill sites live on the internet as well as receiving their monthly statements electronically.

The cost of waste dumping varies according to weight and type of waste. As soon as a driver uses a smart card to access the weighbridge at a landfill site, the account holder is sent an SMS with information about waste net mass, charges and the time the vehicle went in and out.

Pikitup encourages anyone entitled to use a landfill site to acquire a permanent smart card by completing an application form. Less frequent customers can be given temporary smart cards that allow for only one visit.

Pikitup was founded in 2001 as part of a new national waste-management strategy to increase recycling levels and extract maximum value from the waste stream at all stages of the collection and disposal process. The new smart card system takes into account both social and environmental values and, apart from speeding up the process of waste dumping, it also has a safety aspect, since neither the staff nor the customers need to carry cash when going to the landfill sites.

## LAGOS

### Next in line for smart transportation

Within the smart cities program, IBM intends to run a pilot project in Lagos, Nigeria, to improve traffic flow. Lagos is a city of around 18 million inhabitants and has a large number of immigrants. The population is expected to reach 40 million by 2030. However, the capacity of the infrastructure is already very strained and especially the roads are in bad condition.

Working with the Lagos Metropolitan Area Transport Authority and the Lagos State Ministries of Transportation, Works and Infrastructure, and Science and Technology, an IBM team of experts proposed technology-driven strategies called Smart Transportation to make traveling in the city easier. The collaboration was funded by the IBM Smarter Cities Challenge grant.

According to a recent report, 20 percent of Lagos's geographical area is taken up by water, but 90 percent

of commuter travel is by road. City authorities predict a 350 percent growth in the number of vehicles in the state over the next 25 years, while the potential of both rail and water transport remains largely unexploited, carrying less than 1 percent of overall traffic in the state.

IBM's recommendations included better coordination between agencies responsible for traffic management, police, fire and medical care. With the use of technical devices such as mobile phones, call centers, cameras and GPS systems, the agencies could manage the traffic flow more efficiently, as well as wirelessly providing travelers with information about traffic conditions and public transportation schedules. Included among the proposals was also a single, integrated e-ticketing system for all modes of transportation.

Cars are used for most transportation in Lagos today, but the traffic situation is hazardous and many people die each year in road accidents. With a fast-growing population, the situation is likely to deteriorate and new transportation solutions are therefore necessary for economic development, as well as for residents' health and the environment.

### 'Co-Creation Hub Nigeria

Co-Creation Hub Nigeria (CcHUB) is a Lagos-based firm working to catalyze local creative social technology ventures, by linking up individuals with ideas to those who can invest in, refine and support those ideas and turn them into practical realities. CcHub is an innovation space where tech-savvy people share ideas and work together to build tech solutions to community problems. Like many hubs, Nigeria's version also creates a state-of-the-art space for like-minded people to collaborate and innovate. But CcHub aims to stand out from the pack with its focus on social responsibility.

As stated on its website, the hub is "a place for technologists, social entrepreneurs, government, tech companies, impact investors and others" in and around Lagos to cocreate new solutions to the many social problems in Nigeria.

Through workshops and meet-ups, the hub promotes dialog and provides a shared space where individuals from diverse backgrounds and professions can brainstorm their tech ideas and develop local solutions. The goal is to accelerate the successful development of social tech ventures and create novel technologically driven solutions to the social challenges facing the average Nigerian.

The case is an example of how technology and social media are used to promote innovation and productivity. While helping companies that are struggling with different issues, ICT is also used as an instrument in seeking innovative solutions to social problems. CcHub has also helped host Lagos Social Media Week.

## SYDNEY

### Digitization of State Library collections

The State Library of New South Wales (NSW), Australia has launched two projects, which will provide unprecedented, worldwide access to the nation's most iconic and historically significant documents and objects. The NSW Government will contribute AUD 32.6 million (USD 30.85 million) over the next four years to supporting the library's major digitization program and to upgrading its digital infrastructure. The initiative will ensure that the State Library becomes globally recognized as a world leading library and center of digital excellence by making its vast collections available to all. The entire heritage collection is now searchable online, making it even easier for schools, universities, family historians, researchers and many others to find and use the unique materials available.

The library's unrivalled collections comprise the world's foremost archive on European exploration and settlement of Australia and the Pacific, and on the indigenous peoples of these regions. Around 12 million images or page views will be generated progressively over the next decade, substantially increasing global access to the library's collections, and providing important benefits to regional areas and the creative industries in particular.

### Electronic sharing of medical records and imaging for the state's public hospitals

HealthShare NSW is developing and implementing a range of innovative programs designed to improve efficiency and better support the delivery of patient care. The rollout of the ICT initiatives includes:

- > Electronic Medical Record (eMR) and medical imaging capabilities supporting 75,000 NSW clinicians and covering 80 percent of all beds in NSW public hospitals
- > a dedicated ICT Infrastructure Office responsible for critical network and data center upgrades
- > important initiatives in electronic medications management, community health and medical imaging.

The eMR program is designed to deliver electronic medical records to NSW public hospitals. The first phase of the eMR Program, which was completed in 2011, delivered electronic medical records to emergency departments and operating rooms as well as some electronic functionality to wards. The second phase aims to expand on the work by bringing additional electronic functionality to wards as well as other initiatives such as implementing voice recognition pilots into emergency departments, replacing paper-based observation charts with electronic versions and so on.

The Electronic Medication Management (EMM) Program is designed to support doctors, nurses and pharmacists in recording, prescribing, ordering, checking,

reconciling, dispensing and administering medicines. It aims to introduce functionality that supports safer and more efficient management of medication in NSW public hospitals and provides all users with access to the same information in real time.

## NEW YORK

### Free solar mobile charging stations in New York City

As part of an ongoing effort to keep residents connected, New York City is rolling out Street Charge stations – public solar-cell-driven charging stations – across five boroughs. The project is run in cooperation with AT&T, the biggest telecommunications company in the US. AT&T has teamed up with solar industry leader Goal Zero and Brooklyn-based design firm Pensa to develop the initiative.

In order to test the concept, Pensa had to set up a group of ordinary café sun umbrellas connected to solar chargers and collect user data on the streets of New York. They studied how much power the average person needs, and found out whether or not people brought along their own power adapters.

Street Charge is a self-sufficient battery-filled pole that can be dropped anywhere – from a strip of unused asphalt to a patch of grass in a city park. Furthermore, since Street Charge requires no electricity – and therefore no digging to lay wiring – its installation is easy.

Street Charge has grown out of the power outages experienced during Hurricane Sandy in 2012, when AT&T powered New York City's distribution centers with commercial generators and a pop-up cellular service. New Yorkers who had lost power for days flocked to the centers seeking a charge and a way to communicate with the outside world. The storm revealed the need for a sustainable charging solution that can cope with increased climate variations and natural disasters.

## LOS ANGELES

### Incubators helping ICT startups

Los Angeles has always been known as a place for showbiz and creativity. Through an initiative called Edge. LA, the city now provides resources and connectivity tools to support business innovation.

MuckerLab is an operationally focused startup accelerator that invests in mission-driven teams building internet software, services and media companies. Launching, building and scaling new projects are risky endeavors, and MuckerLab works with entrepreneurs in areas most critical to the success of their businesses such as customer development, business development, operational infrastructure, recruiting, strategic guidance, and capital. By investing in the success of early-stage

companies in Los Angeles, MuckerLab aims to accelerate ICT development in southern California.

Another similar company is the StartEngine, which is focused on helping Los Angeles-based technology startups in the web, mobile and e-commerce space build a solid foundation for success in 90 days. The idea is to offer a team of mentors who are successful entrepreneurs themselves to ensure that the startups are guided by experts and get access to an extensive network in the ICT business.

By creating a hub for startup companies, offering all kinds of resources, the Edge.LA initiative supports the city's innovation ecosystem whereby the flow of ideas, technology and information among people, enterprises and institutions is a key to the innovative process.

## MIAMI

### Smartphone mapping in Miami hospital

Miami Children's Hospital has launched a free iPhone application that uses Wi-Fi positioning to help patients and their families navigate through the center. The Fit4KidsCare app presents the user on a smartphone display as a dot on a two-dimensional map of the hospital. It even detects vertical distance for when a person is using an elevator.

It was the hospital's Senior Vice President and Chief Information Officer Edward Martinez who came up with the idea of a GPS system for patients. He liked the way a similar app worked at a particular museum, and thought it could be useful at the hospital since one of the main concerns among staff was people asking for directions. Mapping apps are not new, but most rely on GPS from a satellite to a mobile phone or other device, which can only offer accuracy to within three to five meters. Using positioning with Wi-Fi access points is rare.

Through the Fit4KidsCare app, families can now get directions to the hospital facilities and physicians at the touch of a button. The app also shows hours of operation and includes a complete list of physicians categorized by specialty along with their contact details. Appointments can be requested directly using a smartphone.

ICT has many benefits, and as the technology advances, these kinds of tools will offer more possibilities for. Recently, Fit4KidsCare launched a food service feature so that patients' families can pay for and order meals. The next thing they will add to the app is video content that will help patients keep up with a medication regimen or follow the doctor's advice after they leave the hospital.

## BUENOS AIRES

### Open government

The Buenos Aires Open Government initiative has been developed and nurtured by the city authorities with the aim of developing transparent, collaborative and participatory government policy.

The Open Government Plan is one of the three pillars – along with the promotion of a culture of open government and open data – designed for building a new arena for dialog and interaction with citizens and to provide access to public information.

As part of the initiative, the city launched the Buenos Aires Data portal ([data.buenosaires.gov.ar](http://data.buenosaires.gov.ar)), which contains 50 datasets of government information. The portal facilitates citizens' access to a catalog of open public data that the city produces daily. It helps to promote transparency, encourage the participation and collaboration of citizens in government affairs, and encourage innovation and social, economic and cultural development in the city.

The data formats promote the interaction and the development of other platforms independently. The datasets are published in formats reusable by third parties, and are organized by category: public finance, transport and mobility, security, urban planning and education.

The first Buenos Aires Hackathon took place in May 2012, with about 100 mobile application developers competing simultaneously to create digital solutions from the data available in on the portal. Groups were organized according to themes, with a choice of Green Agenda, Culture and Tourism, and Education and Mobility. All developments that were completed and their source code were open and available for free download, enabling future innovations and improvements. In May 2013, the second Hackathon brought together more than 350 programmers, journalists, educators and leaders with a view to finding alternative solutions to problems related to technological developments.

In 2013, the Open Government program won an international award in the Latin American Meeting on Digital Cities held in Quito, Ecuador.

## SÃO PAULO

### Healthcare mobility

Since January 2012, teams from six Basic Healthcare Units (Unidades Básicas de Saúde/UBSs) in the western part of the city of São Paulo have replaced pens and paper with smartphones connected to Brazil's Unified Health System (SUS) to record the health profiles of each household they visit. The m-Health initiative is aimed at improving the databases at the

units and creating an online chart.

Some 60,000 people are currently registered in the system, which represents around 15,000 families, or almost 100 percent of the population in the area where the project has been developed. In the past, healthcare agents filled out a form, entered the data manually, saved it to a disk, and then sent the information to the SUS: a process that took 60 days to complete, with data often being lost along the way.

The smartphone application, which is equipped with a security solution, loads an individual's electronic medical records. Over a 3G network, the UBS teams submit in real time the residents' records to the computers at the USP School of Medicine, where the project database can be accessed. These UBSs provide a model for other units in the state.

The system can be fully integrated with the Ministry of Health's database. It is a technological breakthrough in healthcare, which brings many benefits. For example, using this tool, you can easily map the locations affected by specific diseases (dengue fever, diabetes, hypertension, and so on) and act more efficiently, whether through early diagnosis, disease prevention or health promotion.

The aim of the innovation is to optimize the productivity of health services, serve more families by extending the scope of the project, and speed up the disease identification rate.

## MEXICO CITY

### ICT for supporting the poorest areas

The community integration program México en Comunidad (Mexico in Community) is a project that uses ICT to support the poorest areas, villages and towns with a focus on two main areas: the Community Creation System and the Support Programs Platform. The Community Creation System provides an easy-to-use, non-specialized tool to create a web page for each community. Local users can provide information on the web page about specific topics such as products, services, tourist attractions, festivities as well as information about customs and traditions, stories, myths or traditional recipes.

More than 300 communities have been highlighted and made visible to others using this system. The Support Programs Platform is intended for the promotion of specific government and NGO programs, making their guidelines more understandable and accessible to non-IT-savvy users. The programs focus on health, education, environment, economic development, housing and infrastructure. More than 15 different federal government agencies provide up-to-date content.

At a time when the era of globalization has sparked fears of cultural homogenization, sites like México en Comunidad shed light on the usefulness of the internet as a multicultural asset. It shows how the web can be effectively used for the preservation of ancient cultural resources along with contemporary and up-to-date information resources. The site offers content in Spanish as well as in the indigenous Mexican languages of Mayan, Tzotzil, Topolabao and Mixteco.

Developed by the IT Cooperation Center Iberoamericana, the site also shows how internet resources can be used with multiple models. The site is both a platform for support services as well as a community communication tool. It is not just a one-way showcase of information created by a third-party media team, but has tools to allow users to create their own content specific to their individual communities.

The website meets e-governance needs of 15 government departments and NGOs by providing access to important resources about education, health care and social support. By giving digital tools to local community members, the site enables them to showcase local festivals as well as touristic attractions, meeting their cultural and commercial needs. The site has been described as "the Facebook of communities and little towns" but it also has the important cultural purpose of "inclusion."

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