



**Hewlett Packard  
Enterprise**

# **Citizen .nxt**

**Digital innovations and changing demographics are  
redefining government by the people, for the people.**

# TABLE OF CONTENTS



4

## EXECUTIVE SUMMARY

Shifting Service Models: Will the Public Sector Survive?



8

## MEET THE NEW CITIZENS

Global citizens of all ages and nationalities will expect the public sector to serve up the services they need, when and how they need them.



20

## CROWDSOURCING THE GOVERNMENT

Open data has become a never-ending virtual suggestion box of sorts, as citizens mine it to inform recommendations for how services should change, while public sectors use the same data sets — and more — to determine what citizens want.



32

## CITIZEN DISRUPTORS

As the sharing economy and idea economy gain momentum, citizens and private companies are solving problems that used to be relegated to public sectors.



44

## GOVERNMENT GOES MULTICHANNEL

Interacting with the public sector isn't a face-to-face experience anymore. As additional channels open, the way in which citizens interact with government will more closely align with their preferred methods of communication — social media and digital platforms.



52

## CONCLUSION

Revolution Starts From Within: Citizens Control the Government



An aerial photograph of a large, diverse crowd of people gathered on a vast green lawn. The people are scattered across the field, some sitting on blankets, some standing in small groups, and others walking. The scene is bright and sunny, with the green of the grass being the dominant color. The title text is overlaid in the center of the image.

# SHIFTING SERVICE MODELS





---

Governments can no longer dictate the type of relationships they have with citizens — the people have spoken, and they demand consumer experiences.

# Will the Public Sector Survive?

Increased access to data and more channels of communication have given citizens renewed civic power. Public-sector agencies must be just as responsive as any other enterprise with which citizens interact. If you're an optimist, imagining the results of a hyperconnected citizenry is exciting. As long as government is responsive, greater citizen involvement could help reduce problems that plague modern society, including poverty, disenfranchisement and even crime.

Many public sectors are mired in bureaucracy, which makes it hard to innovate and provide citizens the connection and communication they seek. Just as enterprises in retail, financial services, manufacturing, communications and nearly all other industries scramble to turn their operating models on their heads in order to put the customer first, so must the public sector. In the face of this massive change, what will it mean to be a citizen in the future? And what will the world's institutions, agencies and governments look like?

The ability to leverage the opportunities and navigate the pitfalls that a deeply connected digital world creates is becoming second nature for citizens, and the public sector must now follow suit.

- Citizens will expect a customer-driven experience when interacting with agencies at every level. Public sectors will have to invest in ways to provide the right services at the right time to an ever-growing population.
- The sheer amount of data generated by citizens on a daily basis will require sophisticated tracking and data analytics systems.
- Citizens will require that public sectors be accessible and transparent, forming cross-agency integration and one-stop portals for constituents' information.
- The line between public and private-sector organizations will blur, as partnerships develop to cater to the greater good.

In response to these demands, the public sector's traditional structure and process-oriented system will no longer suffice. It must now become citizen-obsessed and outcome-oriented to serve the new rulers in town — the constituency. These citizen-driven public sectors will put their customers — citizens and businesses — at the focal point of all key decisions: “Does this make sense for the constituent segment?” and “Does this deliver value?” will be the new barometers.

With this strengthened outside-in focus, “joined up” government becomes a reality. Collaboration becomes the norm. Partnerships thrive.

This isn't utopia. It's the future. ■■■

**“If public sectors flip their point of view from being inside out, focused on how they improve operations, then they are better able to figure out how to give citizens what they want. And that's when you begin to see services offered across agencies.”**

*SUPARNO BANERJEE, GLOBAL LEADER FOR HPE FUTURE CITIES INITIATIVE*





EXIT



17 Avenue

01

# MEET THE NEW CITIZENS



Outbound Train

Shopping Centre



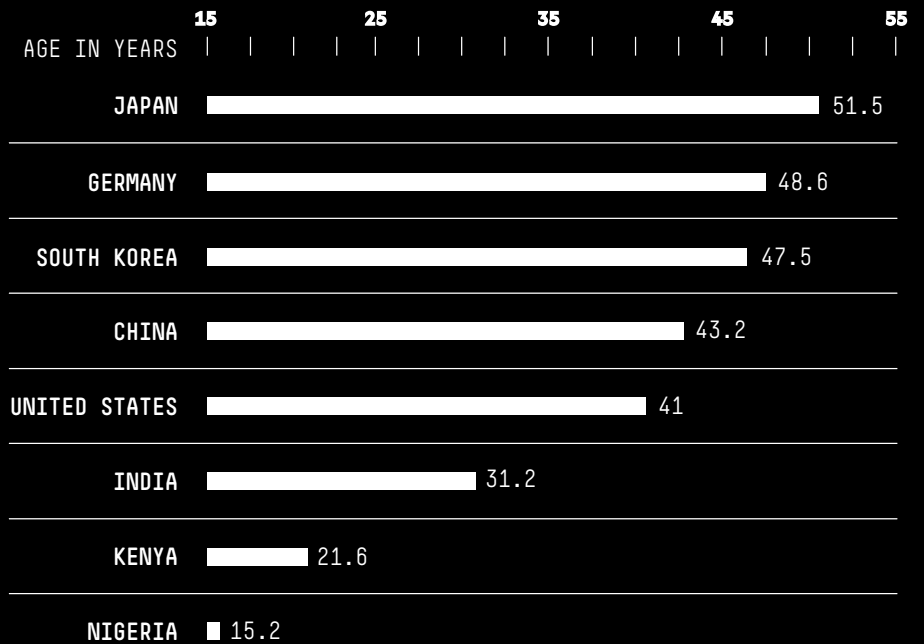
Knowing how to serve the population starts with understanding the distinct pieces that make up the whole.

SHARE THIS WITH YOUR NETWORK





# Generation Gaps



## AGE IS JUST A NUMBER

While the global median age is 33.1, each country's individual figure is determined by a variety of factors, including life expectancy and fertility rates. This chart shows the median ages in eight different countries.

Better serving citizens starts with better knowing citizens — who they are today and who they will be in the future.

Over the last century, the world's population has more than doubled. More people on the planet means more demand for services, as well as increased stress on existing urban and rural infrastructures.

In addition to global population growth, there has been an increased citizen migration from rural areas to more urban cities, transferring the responsibility to provide for them from one government

to the next. In fact, by 2030, 60 percent of people will live in cities of more than 10 million (dubbed “megacities”), and the world's 600 fastest-growing cities will account for 60 percent of global economic growth.

This shape of growth will put pressure on specific areas of the public sector's budget. Transportation, education, healthcare, security and the like will feel the strain as public agencies strive

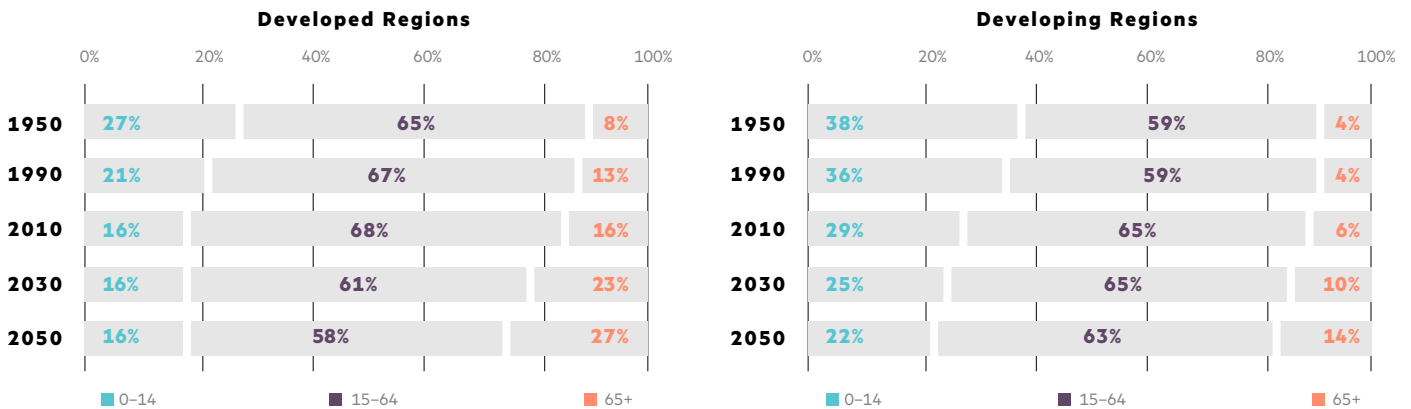


to scale their systems to meet the demands of diverse populations comprising multiple generations.

To wit, the “gray bubble” — where older generations are growing faster than the population as a whole — will require a larger investment in care and service, which will have to be supported by a smaller tax base of young people. According to the European Union, 30 percent to 40 percent of healthcare expenses are already being spent on people aged 65 or older.

Beyond the obvious challenges of trying to meet the needs of an ever-growing population lie subtle nuances that are equally important:

- A more crowded and urban world could crunch resources to the point of collapse.
- Technologies that motivate private and public investment in things such as zero-waste programs, alternative-energy production and increased-yield agricultural research can't come soon enough. ■■■



## AGE BREAKDOWN OF WORLD POPULATION

Developed countries will have twice as many people over 65 than people under 14.\*

Source: United Nations, World Population Prospects, the 2010 Revision; The Future of World Religions: Population Growth Projections, 2010-2050. \*Figures may not add to 100% due to rounding.



## POPULATION DISTRIBUTION

While the world's population is expected to hit 11.2 billion by 2100, the rate of growth isn't universal across the globe.

	2015	2030	2050	2100	% Increase
World	7,349	8,501	9,725	11,213	53%
<b>Africa</b>	1,186	1,679	2,478	4,387	270%
Asia	4,393	4,923	5,267	4,889	11%
Europe	738	734	707	646	-12%
LATAM/Caribbean	634	721	784	721	14%
Northern America	358	396	433	500	40%
Oceania	39	47	57	71	82%



**Population**  
(millions)

# Changing Composition

The demographic composition of the world is shifting and will continue to evolve during this century, due to longer life expectancies, a decrease in mortality rates in developed countries, increased fertility rates in developing countries and an aging population segment — baby boomers.

In fact, the population aged 60 and older is increasing at a rate of 3.26 percent per year — nearly three times as fast as the average growth rate for the population as a whole. What's more, the public sector will have to serve five generations at once: traditionalists/silent generation, baby boomers, Gen X, Gen Y/millennials and Gen Z.

Gen Z brings with it a new set of expectations and thinking. They are, after all, the first class of digital natives:

citizens born into a connected world versus those who have adapted to it. Therefore, they process information differently and have new world views not necessarily shared by their older contemporaries.

Public sectors will have to identify the expectations this younger generation brings with it, and learn how to provide the services necessary as digital natives reach maturity. Shaping these interactions starts now, and public sectors need to incorporate resources and talent to

ensure these digital natives view the government as a service provider and partner. At the same time, public sectors have to continue to serve older constituents in the ways they are accustomed. For example, digital natives prefer social media (e.g., Snapchat, WhatsApp, Weibo, Kik) rather than email for communication, whereas baby boomers might opt for a phone call or office visit. ■

Generation	Technology	Relationship with government
<b>Traditionalist/ Silent Generation</b> 1925–1945	Dictates documents Emails only in the office Library instead of Web Limited phone use	Patriotic Team player Sacrifice for the greater good
<b>Baby Boomer</b> 1946–1964	Documents prepared by associates Emails primarily in the office Uses Web to “Google”	Free-spirited Can distrust government
<b>Gen X</b> 1965–1980	Creates own documents Uses mobile and laptop Uses Web to research, review, etc. 24x7 use of mobile/email	Untrusting of government
<b>Gen Y/Millennial</b> 1981–2000	Creates own documents Creates databases Uses Web to research and network 24x7 use of email/IM/text	Activists Interaction with government through apps
<b>Gen Z</b> 2001–present	“Digital” is the norm Uses social networks to communicate and research 24x7 use of WhatsApp, Instagram, etc. No email	To be determined

## GENERATION BREAKDOWN

Strong ideological differences separate generations living within cities. Each generation’s ideals influence how they view family, career, community and government. City leadership seeking citizen support will have to acknowledge and address the differences between generations served by the same resources.





# Removing Barriers to Relocation

In addition to population growth, aging and fertility and mortality rates, there's another factor affecting constituency composition: migration.

For generations, people with the means to relocate have done so for a better life — whether in search of lower tax rates, better school systems, lower crime rates or healthier environments. But the future will bring mobility on an unprecedented scale. That's because the ability to work remotely (thanks in large part to the Internet and mobile devices), enables dissatisfied citizens to move to a different city, state, country or even continent to find a way of life that better suits them.

"Governments that serve people must understand their needs, respond with speed and deliver services that are tailored to them," says Suparno Banerjee, global leader for Hewlett Packard Enterprise Future Cities initiative.

"Otherwise, people and business have a choice. They're going to relocate."

While we are seeing the rise of a mobile class of professionals who move due to choice, millions of people still move for survival. Europe is experiencing the worst refugee crisis since World War II. According to the United Nations, one in every 122 humans on the planet is now either a refugee, internally displaced or seeking asylum. Millions of people have fled the war-torn countries of Syria, Iraq and Afghanistan. Their struggle to find safe haven in the European Union and other areas has tested the immigration policies of many countries and put pressures on the governments of the countries these refugees hope to call home.

Urbanization and migration are raising important questions that some agencies are unprepared to answer: How will they enable and monitor their new citizens' progress? How can they adjust and scale up the services they deliver to meet the needs of this new population? Banerjee says citizens of tomorrow — whether they move for a better school district or to flee dangerous conflict — will be looking for many of the same things today's citizens want: employment, opportunities for economic growth, education, healthcare and transportation. They will also want the public sector to understand them as individuals in a way that today's governments are unable. ■



117,658  
**Egypt**

245,022  
**Iraq**

635,324  
**Jordan**

1.1 mil.  
**Lebanon**

2.5 mil.  
**Turkey**

---

## SYRIANS SEEKING REFUGE

More than half of Syria's population is displaced as millions flee the war-torn country. A handful of countries continue to welcome Syrian refugees, and stand to benefit from the influx of talent, skills and labor a mass migration brings with it. Here are the countries with the most Syrian refugees in their care.

# 01

## MEET THE NEW CITIZENS: NOW TO NEXT

### Section Summary

It's not enough to be citizen-centric in the age of digital disruption. Public sectors must be citizen obsessed. As citizens' needs and desires usurp the budgetary bottom line, government agencies will have to rethink their approach to providing the public with the services and information it needs — which might mean increased investment and reallocation of resources.



---

## These are the five questions that need to be answered today:

**1**

How are you tracking resources to know what extent of your current and future population can be served?

**2**

What systems can you put into place to ease tensions, promote the health and welfare of refugees and migrants, and ultimately encourage them to be contributing members of the labor force?

**3**

How can technology be used to better allocate resources?

**4**

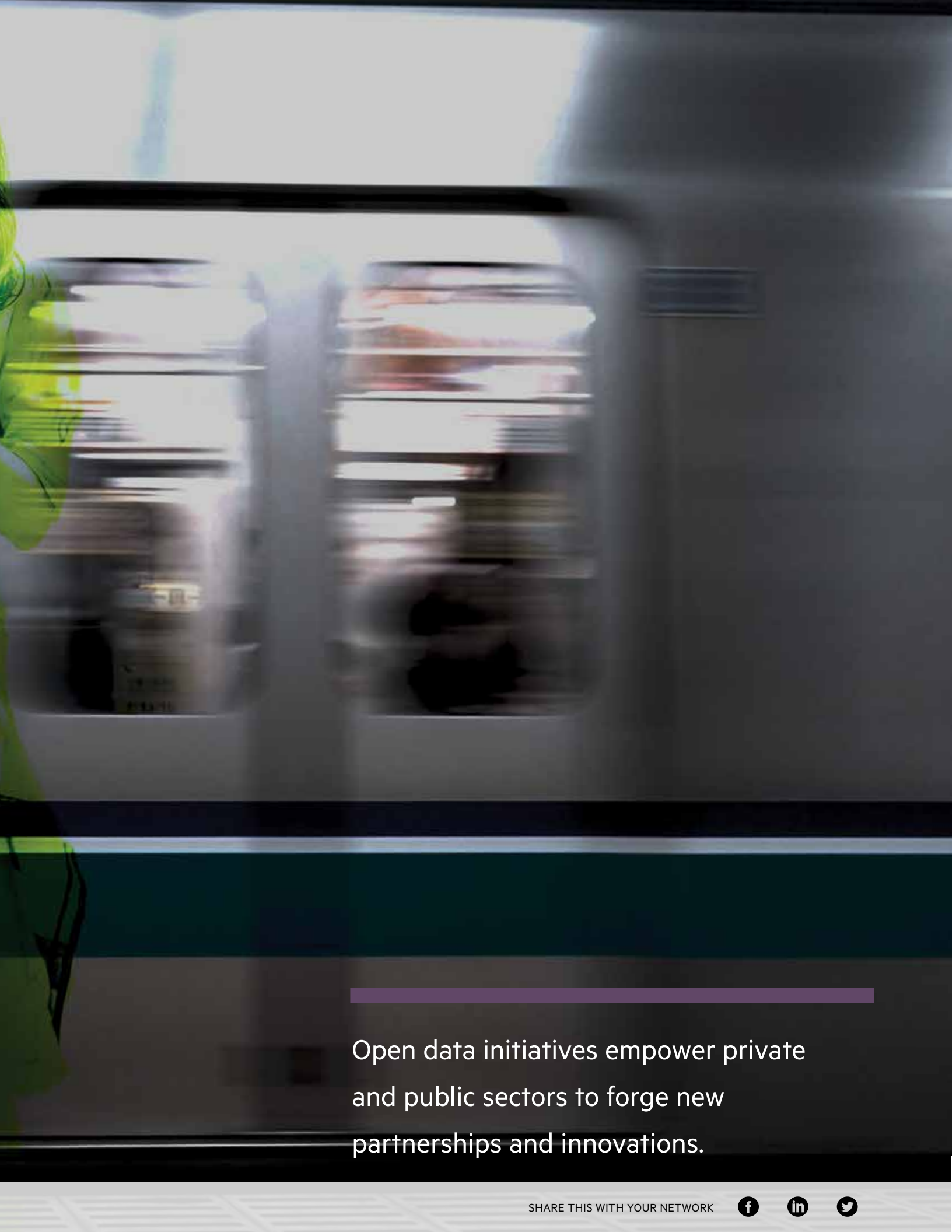
What analytics capabilities will you need to predict how your constituency will change over time?

**5**

What new services will you need to provide to meet the varied needs of five generations at once?

02

# CROWDSOURCING THE GOVERNMENT



---

Open data initiatives empower private  
and public sectors to forge new  
partnerships and innovations.

SHARE THIS WITH YOUR NETWORK



# Open Data, Open Doors

Hypergrowth in mobile, advanced analytics and data science, and cloud technologies will drive innovation, connecting citizens in new ways and fundamentally changing how governments operate.





Bolstering that hypergrowth is the sheer number of smartphones and tablets on the planet. Mobile-device penetration has skyrocketed globally, particularly in developing nations. In 2014, there were 105 mobile subscriptions for every 100 people worldwide. Phone ownership is nearly ubiquitous in the United States, with mobile phone ownership almost reaching saturation level — 92 percent of adults own a smartphone or mobile phone. That approximate level of saturation is also found in South Africa and Nigeria, both with 89 percent.

Due to their inherent tech capabilities — Internet access, video and audio recording, photographing and sharing, etc. — smartphones have the potential to help citizens become better watchdogs of their governments. Add the countless apps that enable everything from expense tracking to shopping and payment, and smartphones will continue to sway how services are consumed. The public sector will have to take a page from the private sector to ensure their offerings remain relevant to a digital society, and “mobile first” will become the new directive.

Of course, the power of mobile devices — and their users — is dependent on the network on which they’re supported. Social media will enable citizens to be fully active participants who freely share their thoughts, build niche communities, interact with government leaders, mobilize around political causes and hold governments accountable for their actions. Ninety percent of U.S. young adults who are age 18 to 29 use social media today, compared with 35 percent of adults 65 and older.

Globally, there will be an estimated 2.55 billion social network users by 2018, and that figure is expected to increase exponentially. In addition, mobile traffic per smartphone in the Asia-Pacific region will grow from 1 GB/month in 2015 to 6.5 GB/month in the year 2021.



Citizens in the 18- to 29-year-old bracket increasingly embrace social media to engage in civic activities, such as encouraging others to vote, persuading action concerning a political matter, and following elected officials and candidates running for office. In fact, the number of registered U.S. voters who follow politicians on Twitter has doubled since 2010. Outside the United States, social media played a crucial role in the Arab Spring and London riots in 2011.

That level of connectedness offers unprecedented insights for public sectors that know how to analyze the data that's available. Furthermore, it puts more democratic power in the hands of citizens, as they can use social platforms such as Twitter and Facebook to organize protests and generate signatures for politically motivated petitions. Citizens are also able to record police officers using excessive force, providing critical evidence that can swing public opinion and legal outcomes. ■■■

**“We are living in an age when people are no longer tied to their desks or offices. Citizens can work on anything and from anywhere, thanks to the rise in mobility. A nomadic population not anchored to physical space has the freedom to pursue its ideal environment.”**

*PIERRE MIRLESSE, HPE VICE PRESIDENT PUBLIC SECTOR, EMEA*



---

### TRAFFIC JAM

The amount of mobile traffic generated will increase by a whopping 873 percent in the span of five years.

30 exabytes

292 exabytes

2019

2014

# Information Overload



## DATA TAKES OVER

Naturally, the increase in mobile devices, combined with an always-connected citizenry, means copious amounts of data are generated on a daily basis. The public sector will need to determine best uses for the information collected, and when/if to provide citizens access to that data. Augmented intelligence (aka big data) has the power to turn public sectors into concierges that anticipate the information or services citizens will seek — and provide it at just the right time.

The challenge lies in harnessing the machine and human data created as citizens navigate the digital world.

Citizens and consumers are beginning to understand how much their data is worth. Just look at the retail industry. By giving retailers an email address or insights into their shopping preferences, consumers expect deals, discounts and tailored recommendations in return. Personal data is becoming a type of currency that citizens might be able to use to their advantage.

“We are all individuals with unique profiles that could be valuable and marketable,” says Ade McCormack, futurist, digital strategist and author of “Beyond Nine to Five: Your Career Guide for the Digital Age.” “If I represent people of my age in



**“We are all individuals with unique profiles that could be valuable and marketable. If I represent people of my age in Western Europe perfectly, my data will be valuable both to government and enterprises.”**

*ADE MCCORMACK, FUTURIST, DIGITAL STRATEGIST AND AUTHOR OF “BEYOND NINE TO FIVE: YOUR CAREER GUIDE FOR THE DIGITAL AGE”*

Western Europe perfectly, my data will be valuable both to government and enterprises.”

Citizens, governments and enterprises alike are entering unknown territory when it comes to data ownership and use. The conversations about data ownership happening today will inform tomorrow’s legislation around who owns what information, how it can and should be used, and, ultimately, who is responsible for keeping that information secure. The hope, of course, is that government organizations will develop policies toward data ownership that say, “We’re here to help,” instead of, “We call the shots.” ■

**2.5** BILLION  
Gigabytes  
**of new data created every day**

**44** TRILLION  
Gigabytes  
**of data created by 2020**

## DATA DELUGE

The amount of new data generated daily will result in 44 trillion gigabytes created over the next four years.

Source: Price, 2015, and IDC, 2014.

# Transparency Equals Trust

When citizens are connected to the public sector, and agencies are sharing information, groundbreaking models for government services can emerge. But the most promising developments hinge on opening some government data to citizens and the private sector, so people can use it to inform solutions and innovations.

According to the Open Government Data project, three compelling reasons exist for governments to open up their data sets to the public:

1. Enable participatory governance models so that citizens are directly informed and actively involved in decision-making.
2. Increase transparency for citizens.
3. Release social and commercial value to drive innovative services.

Open-data initiatives combined with the power of advanced analytics and data science, enterprise software solutions and mobile apps will redefine the public-sector ecosystem. Governments, nongovernmental organizations, universities, corporations and citizens will work together in new ways to improve education, healthcare, infrastructure and quality of life for all.

When public agencies and citizens pull insights from open government data, the possibilities for innovation are limitless. The private sector could use information on metered

parking in metro areas to develop new systems that reduce traffic and parking congestion while maximizing revenue — and then sell those systems to municipal governments. Cities could partner with a vehicle company to launch a fleet of driverless cars for ride sharing, providing a higher class of public transportation that results in fewer idle cars needing parking spaces in overcrowded cities.

From Europe and India to the United States, governments are testing the waters with data they collect and inviting data scientists and IT software developers to make sense of it. Data.gov is the home of the U.S. government's open data, where visitors are invited to conduct research, build apps and design data visualizations using nearly 190,000 data sets. In India, the Open Government Data Platform offers transport timetables, national statistics, government budgets, agricultural data, health performance

and other data sets, as well as key facts at a glance. There is also the Global Open Data Index, which, according to its site, relies on crowdsourced information to evaluate the state of open government data around the world.

In a world where some agencies are territorial about their data, however, openness may not be a welcome change. But it's already in practice in some countries, and experts predict that open data will eventually be the norm unless there's a legal reason to keep data locked down. For example, to combat the perception of corruption in Slovakia, legislation was passed to publish all procurement documents online not by demand, but by default. Citizens are free to peruse the information and highlight instances of corruption and alert the appropriate agencies.

Citizens are likely to trust public sectors that are increasingly transparent with how they process and store the enormous

amounts of data they collect. While constituents are realizing the benefits to having governments store more and more of their information, the potential negative implications to having access to this much data are a legitimate cause for concern.

A government with countless petabytes of citizen data will have the ability to use that data for purposes that violate the public trust. The negative implications of this future are easy to imagine — and they are chilling. Government could spy on political activists, adversaries or even allies. If agencies fail to secure citizen data, it could be stolen by — or sold to — states or groups that may exploit it for financial or political gain. We don't even have to imagine it: In 2015, the U.S. Office of Personnel Management disclosed a massive hack in which extensive personal information of nearly 22 million people was stolen in a breach that could compromise national security. ■

**“What is the digital world we are living in? As citizens we all have to be trained again on the new environment, the new context we are living in. As digital natives, [we all need] to learn to be able to see what is happening around us and what kind of threats and issues we can encounter.”**

*WILFRIED GROMMEN, HPE CHIEF TECHNOLOGY OFFICER, PUBLIC SECTOR, EMEA*

# 02

## CROWDSOURCING THE GOVERNMENT: NOW TO NEXT

### Section Summary

The amount of citizen-generated data is increasing exponentially. Public sectors have to determine whether they have the appropriate resources and talent to put the data to good use. Governments need to learn how to manage and digest the data in order to glean useful insights that can ultimately drive decision-making.



---

## These are the five questions that need to be answered today:

**1**

How can you better share citizen data across agencies to gather more informed insights and provide more comprehensive services?

**2**

What responsive experiences can you offer to allow citizens to access information and services via their mobile devices?

**3**

What tools or technologies will you need to pull useful, actionable information from the wealth of data available in real time?

**4**

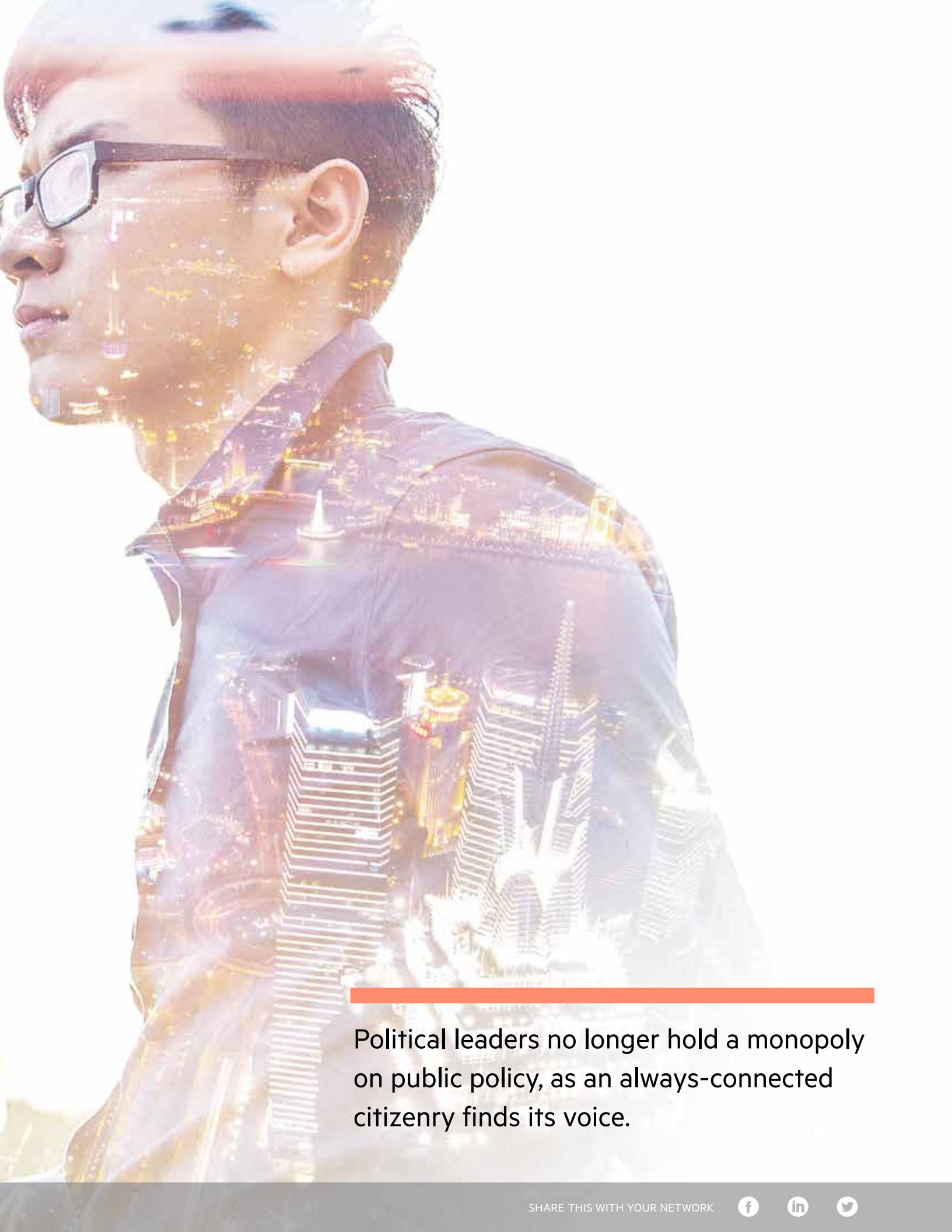
Do your data storage systems have enough capacity to handle an exponential increase?

**5**

Can your security solutions scale accordingly with the amount of information you will need to store?

03

# CITIZEN DISRUPTORS



---

Political leaders no longer hold a monopoly on public policy, as an always-connected citizenry finds its voice.

# Everything Is Connected

The Internet of Things will continue to bring a new dawn of innovation that might very well lead to artificial intelligence in the not-too-distant future. For now, however, the technology is mostly limited to wearing health monitors that track physical activity and using smartphones to control thermostats. But the type and number of devices that can connect to the Internet is growing exponentially, with Gartner estimating 20.8 billion connected “things” will be in use in 2020.





**“I think we will be wearing our identity or having our identity embedded in us. If you have a library card, health information, travel information, money and even a prison record on one chip, that’s convenient. And if it means putting a microchip under the skin behind my ear for more convenience, that’s not such a big sacrifice as it might have seemed 20 years ago.”**

*ADE MCCORMACK, FUTURIST, DIGITAL STRATEGIST AND AUTHOR OF “BEYOND NINE TO FIVE: YOUR CAREER GUIDE FOR THE DIGITAL AGE”*

The types of connected devices being created will enable new breakthroughs that not only turn citizens into change agents for public sector, but also make cities smarter and more livable. Imagine pollution sensors that communicate air-quality conditions directly to residents, and roadside sensors, wearable monitors, security devices and other touchpoints that provide “computing everywhere” to power all of our infrastructure systems. In San Francisco, for example, smart parking meters already set pricing based on

parking congestion, while in Singapore intelligent transportation with congestion pricing prevents the city center from becoming gridlocked.

Hundreds of apps rely on users to report on things like road conditions and vehicle accidents, job postings, weather and more. The people using the apps and entering the data become so-called citizen sensors.

Citizens aren’t the only ones to benefit from this level of connectivity. It also offers unprecedented insights for public sectors

that know how to analyze the wealth of data that comes from all this sharing. The result can be a clearer picture of a public sector’s infrastructure and inner workings, information upon which agencies can act.

Public-private partnerships are not new. They have been used in infrastructure for decades to finance toll roads, bike-sharing programs and transportation in many cities around the world. Technology will enable these partnerships to reach a new level of collaboration and transparency. ■





# The Dawn of Digital Dystopia

Most wearable devices are currently limited to health-monitoring capabilities. But that's on track to change.

- Transportation agencies will use real-time data from cars and smartphones to trigger a network of intelligent traffic signals that reroute traffic away from accidents.
- Citizens will use wearables or embeddables to send stats to doctors or call 911 — particularly useful in areas with aging populations.
- Sensors placed within cities will detect the sound of shots fired and aim public cameras toward the origin of the gunfire, using facial-recognition technology to identify suspects.
- Citizens could become part of an early-warning system during natural disasters, such as reporting flooded roads or helping to record the epicenter of an earthquake. ■

## CITIZEN SENSORS

As more and more people engage with mobile apps, a window of opportunity exists on the civic service level. Citizen sensors offer governments a way to glean more data without adding extra resources. Here are five public-sector agencies capitalizing on citizen-sensor data.

1. **Malaga, Spain.** Residents use a mobile app called Malaga CitySense to report real-time data about everything from humidity to job postings. That data can be culled to reveal useful information about the city and its constituents.
2. **Massachusetts.** The Boston mayor's office released an app that uses GPS and smartphone accelerometers to identify potholes in the roads.
3. **California.** The California Department of Food and Agriculture released an Apple iPhone app called "Report a Pest" that enables citizens to snap a photo of a bug, which is then submitted to inspectors and entomologists for identification. If it's a critical insect — say, an invasive species that requires an immediate response — the agency can contact the citizen and investigate further.
4. **United States.** The U.S. Environmental Protection Agency is working with citizens who own consumer-grade air-quality monitors to obtain hyperlocal air readings and detect pollutants.
5. **Singapore.** As part of its Smart Nation program, the Singapore government is installing sensors and cameras across the city-state that will enable it to monitor everything from the cleanliness of public spaces to the movements of every registered vehicle. The data collected will be fed into an online platform that the government can use to see the status of its jurisdiction in real time. Predictive analytics could give the government insights into how infectious diseases might spread or how large crowds might react to public violence.



# Change Agents for Civic Service

It won't be long before the population at large will become citizen hackers. Data digestion will fuel new processes and "life hacks" that will ultimately create efficiencies in government.

Data generation and consumption will lead to an information-driven economy, where ideas become currency and impetus for continual change.

Surprisingly, government-sponsored hackathons have been popping up all over the world, and have the potential to kick-start IT software solutions to long-standing problems. By tapping into the knowledge of the private sector, and keying in on popular events, these hackathons are helping government agencies benefit from their citizens' ingenuity:

- **Code for America** builds open-source technology and organizes a network of people to improve government services.

When 1,300 government leaders, technologists and community members gathered in Oakland, Calif., in October 2015 for the organization's annual summit on 21st-century government, technologies to enable open data were a key theme.

- **The New Zealand Government** ran three hackathons in late 2015 to uncover fresh ideas. "There's a recognition here that innovation is not necessarily coming from your own government IT staff, but it happens if you make an ecosystem available and provide an incentive for people to access your data and do interesting things with it," says David Eaton, HPE chief technologist in New Zealand.

- **The California Department of Food and Agriculture** recently held its first hackathon to tackle persistent problems, such as conserving water during a drought. The agency also has sponsored several multimillion-dollar grants to the private sector and the University of California to run tests in which data from ground-based sensors, weather data and farmer input go into a system that advises how much and when to water a crop, as well as how much fertilizer to apply. ■

## **PUBLIC-PRIVATE SECTOR PARTNERSHIPS**

Entrepreneur Ben Berkowitz started SeeClickFix in 2008 as a communication platform that enabled citizens to report directly to local governments nonemergency issues in their neighborhoods — potholes, graffiti and litter, and streetlights that need replacing. “We started SeeClickFix because of the ‘can’t’ we were experiencing in New Haven,” Berkowitz says. “When it came to connecting with City Hall to solve small problems in the public space, the problem of how to connect seemed substantially larger than it should have been.

We couldn’t find anything similar, other than FixMyStreet in England. We looked at that idea, and then we thought of how we could make it global.”

Berkowitz says connecting with the local government was just the beginning: “At some point, the government started asking us to build software to manage the data IT receives, and that’s when we found that we had a business model that helped solve more problems.”

The company forged a professional relationship with the local government that helped resolve residents’ issues more quickly. Two sides that were seemingly at odds with each other — citizens and government — became harmonized.



# What's Yours Is Mine

## BEHOLD THE SHARING ECONOMY

In the sharing economy, citizens use digital technology to circumvent established systems in favor of peer-to-peer transactions. They rent instead of buy, sharing everything from rides and houses to media, money and food. Besides being efficient and convenient, services of the sharing economy build trust and a sense of community in a way that few enterprises can replicate.

Public sectors that fail to keep pace with these new business models will end up fighting private innovation with outdated regulations — or missing out on the revenue they could be generating if sensible regulations existed. ■








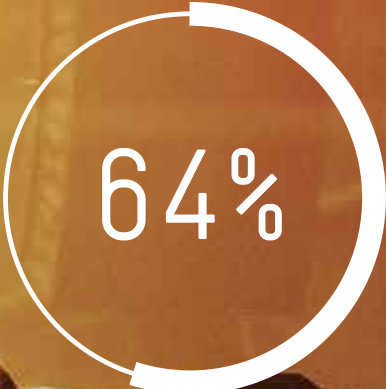
44%

Nearly half of U.S. adults are familiar with the sharing economy.



25%

Twenty-five percent of U.S. adults have made a sharing-economy transaction.



64%

According to 64 percent of consumers, peer regulation is more important than government regulation within the sharing economy.

---

#### SHARE AND SHARE ALIKE

Increasing adoption and expansion of peer-to-peer services has the potential to disrupt government agencies.

Source: PricewaterhouseCoopers, LLP, 2015.

# 03

## **CITIZEN DISRUPTORS: NOW TO NEXT**

### **Section Summary**

As more data is available to the public and private sector alike, areas of opportunity for increased efficiency and service will exist. It will be up to both sides to determine if they want to collaborate and compete.

---

## These are the five questions that need to be answered today:

**1**

How might you partner with other agencies and the private sector to provide the digital services your citizens will be expecting?

**2**

What incremental changes to existing systems and processes could you make to help transform services already in place?

**3**

How could you partner with citizens to gain access to more data, and vice versa?

**4**

What information do you have that citizens would find valuable if given access to it?

**5**

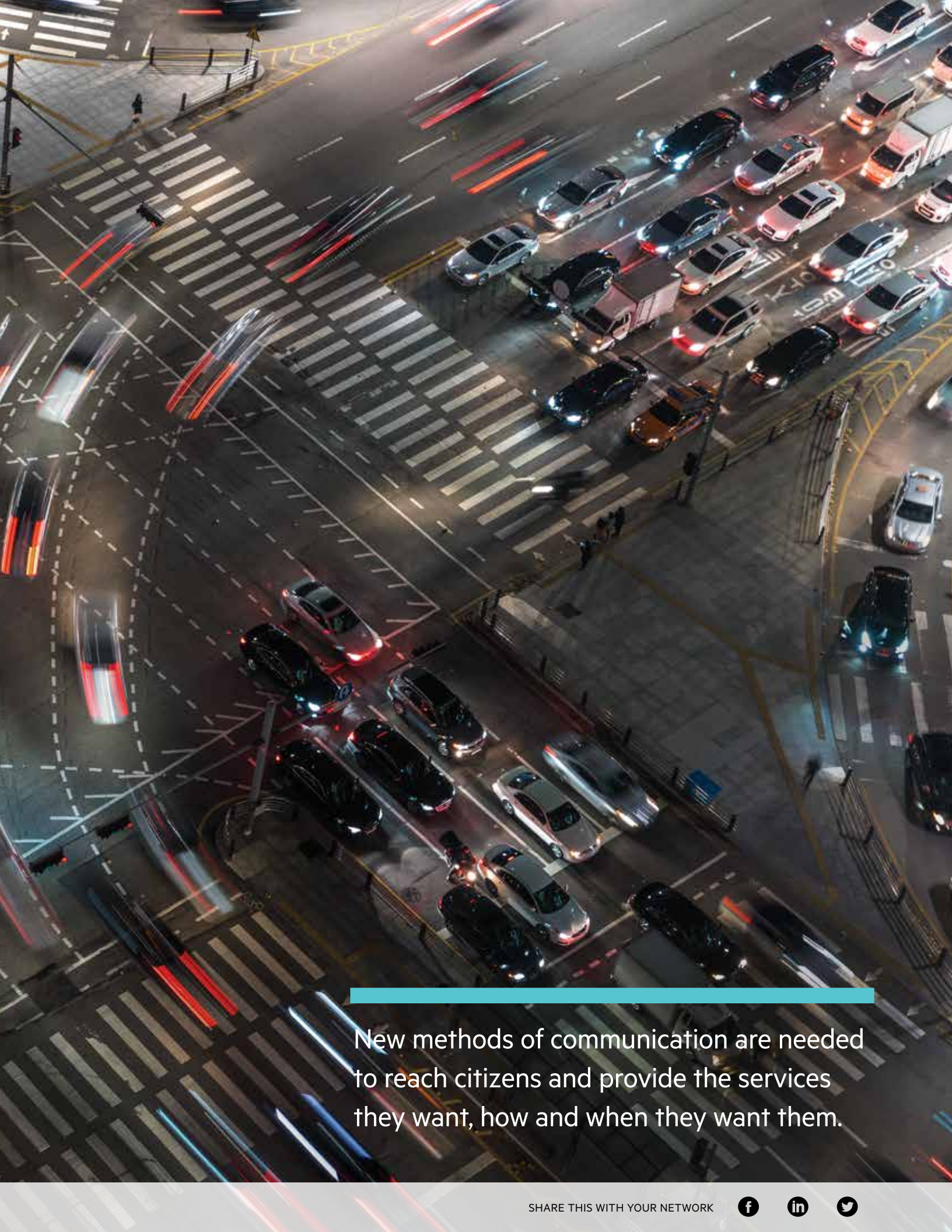
What existing tools could be leveraged to transform into a citizen-centric service model?



04

# GOVERNMENT GOES MULTI CHANNEL





---

New methods of communication are needed to reach citizens and provide the services they want, how and when they want them.



# Bureaucracy with Benefits

Imagine that the next time you have to deal with a government agency, you wouldn't have to fill out any forms, because you provided the same information for another agency one year ago, when you moved to the area. A convergence of government databases would make it easier for citizens to interact with agencies on every level.

Today, this level of agency integration is almost unthinkable. Most people live under municipal, state or provincial, and national governments simultaneously; at each level, citizens have to deal with multiple agencies for taxes, healthcare, employment, sanitation and law enforcement, to name a few. In most governments, disparate agency systems cannot talk to each other at all. Even within a single agency, data is siloed.

This current lack of collaboration among governments at the international, national, state and even local levels is evident. Think about it. The process you follow for getting a replacement Social Security card, for example, is entirely different than the one necessary to get a new driver's license. And neither of those procedures is aligned with procuring a passport. And yet there is crossover when it comes to the information required to obtain each government-issued ID. This fragmentation leads to frustrating interactions in which citizens have to supply the same information on multiple forms and phone calls. It also wastes valuable resources. As the public sector begins to collect more data, citizens will have

to provide that information over and over again — unless government agencies find ways to share a single source of citizen data.

“Why would we duplicate effort and expense by having numerous, different ways for citizens to make payments to government online?” says John Manzoni, chief executive of UK's Civil Service. “Why have departments developing their own systems when, by working to a common goal, we could have one?”

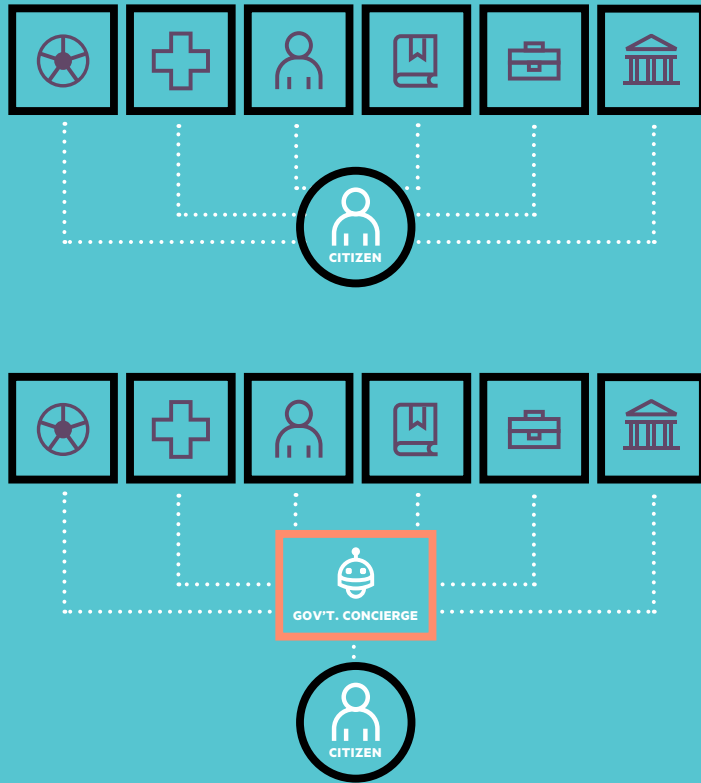
Interagency cooperation isn't important just for the sake of convenience. It can dramatically improve outcomes for citizens in all areas of life. For example, if a government is trying to find out why children are performing poorly in school, it can examine data on curriculum, nutrition and health, home dynamics, demographics and other indicators that could uncover causes and possible solutions. But this data likely resides in multiple systems; therefore, those agencies with integrated systems will be better positioned to solve complex problems that have many causes. ■

## AGENCY ASSIMILATION

**System integration among government agencies will benefit citizens in the long run. Eliminating redundancies will result in a more streamlined interaction among people and their governments. Here are two countries at the forefront of single-portal access.**






**1. Belgium.** The region of Flanders has created an interagency data-sharing enterprise software platform that eliminates friction between departments — and makes life easier for citizens. Citizens log on to the government website using agovernment-issued ID, which is linked to their individual profiles. The platform knows the history of their services and delivers relevant information without requiring a manual search. Every government interaction — from purchasing bus passes to applying for college grants — takes less time. The government serves 42 million data items every year and has saved more than €100 million in administrative costs since the launch of the initiative.

**2. United Kingdom.** The UK's initiative, gov.uk, brings together nearly 1,900 websites into a single portal. It gives citizens easy access to multiple government services, such as job search, vehicle tax renewal, voter registration, tax credit calculation and more. The site has been hailed as a success for citizen access and transparency, logging more than 2 billion site visits in its first three years of operation. Consolidating services has not only saved citizens time and effort, but it has also saved the government money.



## GOVERNMENT GETS PERSONAL

Currently, citizens in much of the world interact with government agencies on a one-to-one basis. The agencies do not share information, requiring citizens to maintain individual records with each of them. In the future, citizens will interact with all government agencies via a government concierge.

-  Transportation
-  Healthcare
-  Identity
-  Education
-  Employment
-  Taxes
-  Gov't Concierge

# Government at Your Disposal

Some public sectors are ahead of the curve, as evidenced by their transformative “tell me once” initiatives.

Governments are now in the business of making your lives easier. Sweden tracks citizens' financial data, and at the end of the year, residents receive a tax bill. It's a simple process made possible by collaboration between local and federal tax boards.

Along the same lines, the region of Flanders has an objective to improve services by introducing e-government to increase efficiencies and reduce costs. To do this, it realized it needed to reinvent how it used technology, transitioning from a pull to a push model of information exchange. Implementing an interagency data-sharing enterprise software platform means data can now be easily exchanged between departments, speeding up services and making life easier for citizens, including students requesting financial aid.

In the past, students applying for financial aid would have to present an intricate binder of forms and personal

information, and would then have to wait up to three months before the information could get processed and aid received. Today, with a centralized repository of citizen information, the government already has all of the information it needs about students, and sends a completed package to students, asking if they would like to request financial aid again. No forms to fill out; no information to gather year after year. If a student says yes, the government can immediately process the request, and aid is delivered in two weeks. As a result of this and other “tell me once” initiatives, the Flemish government has saved more than 100 million euros in admin costs and increased citizen satisfaction.

As the Flanders example shows, public sectors can use the data they already have access to — salary, interest payments, brokerage transactions, etc. — and pull it all together in the form of a federated government identity that provides a single view of citizens and

the services they use. Some are calling this concept a “citizen locker,” in which financial data or other identifying information could be held in a secure, cloud-based virtual locker that each citizen could access and manage.

India is one of the first countries to adopt the citizen locker concept. “The prime minister of India has announced there will be a single window for every government service,” explains Chandrakant Patel, HPE fellow and chief engineer. “Every citizen will have a locker, and the citizen will own that information.”

At the other end of the spectrum, agency integration could someday lead to a global, issue-based agency that would address planetary concerns like climate change. McCormack imagines people could say, “Let's have one global view, so we can cooperate on climate change to ensure that humanity is not just a temporary experiment that nature has deemed a failure.” ■

## Citizen Locker

Brokerage Transactions

Passport

Vehicle Registration

Driver's License

Social Security Card

Library Card

### INSIDE THE CITIZEN LOCKER

Beyond tax details, the citizen locker could contain a person's passport, driver's license, library card, vehicle registrations and more. By centralizing and analyzing this data, agencies could notify citizens when they are eligible or due for services.

- "Your license expires in two months. Click here to renew."
- "You're becoming eligible for Medicare soon. Click here to apply."
- "Looking for a new job? You're eligible to collect unemployment benefits in the meantime. Click here to apply."

# 04

## **GOVERNMENT GOES MULTICHANNEL: NOW TO NEXT**

### **Section Summary**

The time for citizen engagement is now. Public sectors need to be open to communication on all available channels, and put processes and resources in place to manage multichannel engagement whenever and wherever it happens.



## These are the five questions that need to be answered today:

**1**

Will the proliferation of technology and data enable the public sector to partner with private enterprise on a service level?

**2**

What points of friction are seen in citizens' consumption of public services? What actions can you begin to take to ease the experience?

**3**

Do you have social listening in place to track citizens' feedback or frustration regarding the services you provide?

**4**

What are some of the basic services that you can begin to think about streamlining?

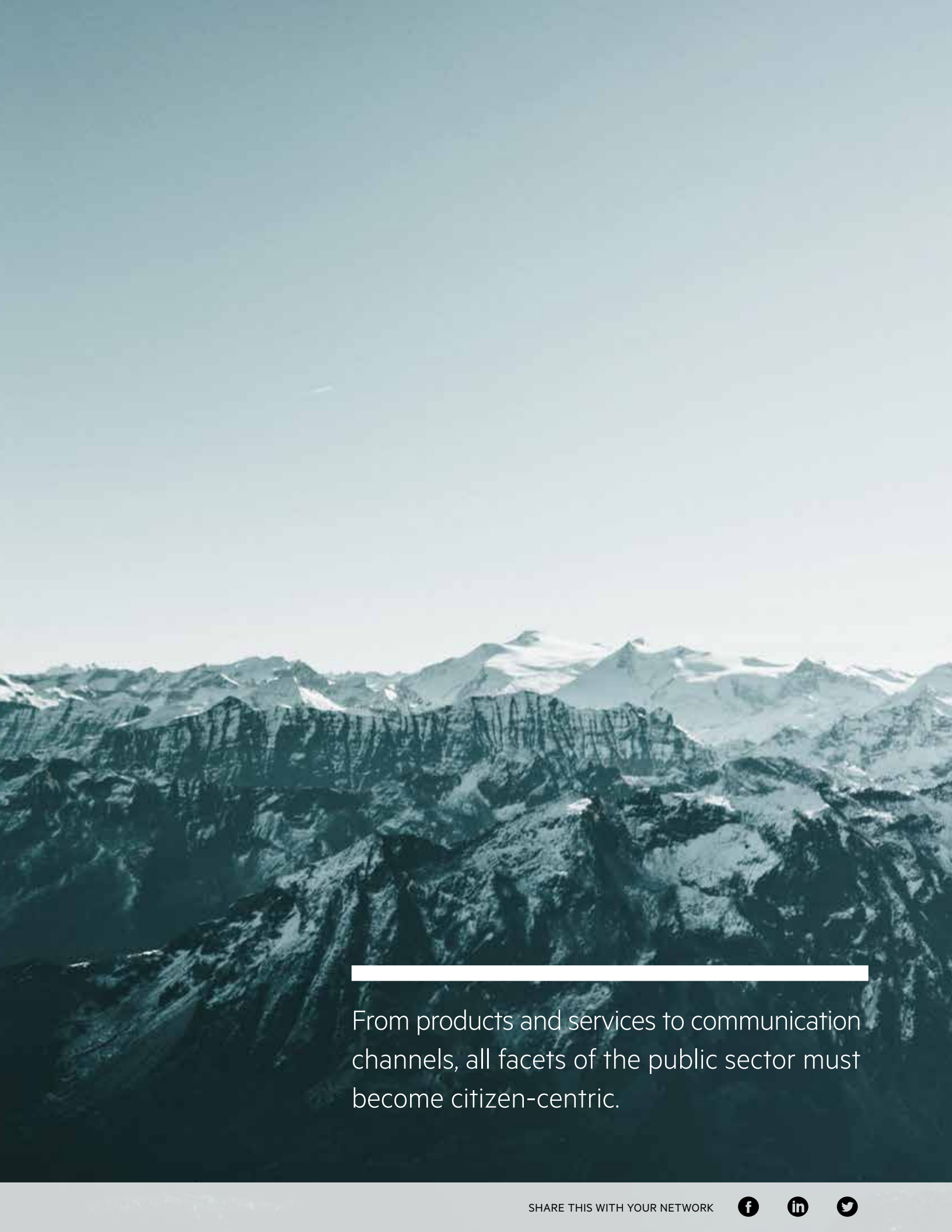
**5**

What additional channels of communication can you use to make citizens' experiences more convenient?

# REVOLUTION STARTS FROM



# WITHIN



---

From products and services to communication channels, all facets of the public sector must become citizen-centric.

---

# Citizens Control the Government

Above all, the public sector, and the processes and services that comprise it, must become citizen-driven now to flourish in the future.

“When you’ve built your infrastructure around systems of record, and now you’re trying to develop systems of engagement to take the citizen on a journey through their day, week or life, you haven’t just got a user-interface issue, you’ve got a process management issue,” McCormack says. “The pipes that run behind the apps, the data processing and the data management, need a major upheaval.”

Public sectors of the future will ultimately need to drive public value by connecting people, businesses and things. This value will be measured through the quality of life, economic prosperity of the citizens, and seamless introduction of government services to the digital natives of this century. A citizen-driven approach will become the new law of the land, as citizens continue to gain

more power and mandate what they need from the public sector — and not the other way around.

The latest advances in wearables, sensors, connected intelligence and analytics, along with innovative apps that enhance the way people live and work, are there for the public sector to exploit and use for the greater good. The correct mix of traditional IT, cloud, security and mobility will enable the sharing of data between public and private sectors, offering opportunity to both sides to innovate and enhance their working and living environments.

All of these innovations enable the public sector to be more efficient, agile and resilient, and help it drive economic growth, improve quality of life and create sustainable communities. ■





## RESOURCES

Aaron Smith, “Cell Phones, Social Media and Campaign 2014,” Pew Research Center, November 3, 2014, <http://www.pewinternet.org/2014/11/03/cell-phones-social-media-and-campaign-2014/> (accessed May 31, 2016).

Aaron Smith, “U.S. Smartphone Use in 2015,” Pew Research Center, April 1, 2015, <http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/> (accessed May 31, 2016).

Alexandra Levit, “Make Way for Generation Z,” *The New York Times*, March 28, 2015, [www.nytimes.com/2015/03/29/jobs/make-way-for-generation-z.html?\\_r=2](http://www.nytimes.com/2015/03/29/jobs/make-way-for-generation-z.html?_r=2) (accessed June 7, 2016).

Ali Clare, David Sangokoya, Stefaan Verhulst and Andrew Young, “Open Contracting and Procurement in Slovakia,” GovLab, thegovlab.org, <http://odimpact.org/case-open-contracting-and-procurement-in-slovakia.html> (accessed May 31, 2016).

Andrew Perrin, “Social Media Usage: 2005–2015,” Pew Research Center, October 8, 2015, [www.pewinternet.org/2015/10/08/social-media-usage-2005-2015-methods/](http://www.pewinternet.org/2015/10/08/social-media-usage-2005-2015-methods/) (accessed June 7, 2016).

Catherine O’Donnell, “New study quantifies use of social media in Arab Spring,” UW Today, University of Washington, September 12, 2011, <http://www.washington.edu/news/2011/09/12/new-study-quantifies-use-of-social-media-in-arab-spring/> (accessed May 31, 2016).

“Cell Phones in Africa: Communication Lifeline,” Pew Research Center, April 15, 2015, <http://www.pewglobal.org/2015/04/15/cell-phones-in-africa-communication-lifeline/> (accessed May 31, 2016).

“Cisco Visual Networking Index: Forecast and Methodology, 2015–2020,” Cisco.com, June 1, 2016, <http://www.cisco.com/c/dam/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.pdf> (accessed June 7, 2016).

“Connected Vehicle Research in the United States,” Office of the Assistant Secretary for Research and Technology, Intelligent Transportation Systems Joint Program Office, United States Department of Transportation, [http://www.its.dot.gov/research\\_areas/connected\\_vehicle.htm](http://www.its.dot.gov/research_areas/connected_vehicle.htm) (accessed June 7, 2016).

Consumer Intelligence Series, “The Sharing Economy,” PricewaterhouseCoopers, 2015, <http://www.pwc.com/us/en/industry/entertainment-media/publications/consumer-intelligence-series/assets/pwc-cis-sharing-economy.pdf> (accessed June 7, 2016).

Craig McCarthy, Jeremy Finch, Karuna Harishanker and Chris Field, “Through the Eyes of Gen Z: 6 Keys to Understanding Your Next Customer,” Altitude, May 2015, [http://marketing.altitudeinc.com/acton/attachment/8306/f-0040/1/-/-/-/Through%20The%20Eyes%20of%20Gen\\_Z.pdf](http://marketing.altitudeinc.com/acton/attachment/8306/f-0040/1/-/-/-/Through%20The%20Eyes%20of%20Gen_Z.pdf) (accessed June 7, 2016).

Department of Economic and Social Affairs/Population Division, World Population Prospects: The 2015 Revision: Key Findings and Advance Tables, United Nations, New York, 2015, [http://esa.un.org/unpd/wpp/publications/files/key\\_findings\\_wpp\\_2015.pdf](http://esa.un.org/unpd/wpp/publications/files/key_findings_wpp_2015.pdf) (accessed May 31, 2016).

“Emerging Nations Embrace the Internet, Mobile Technology,” Pew Research Center, February 13, 2014, [www.pewglobal.org/2014/02/13/emerging-nations-embrace-internet-mobile-technology/](http://www.pewglobal.org/2014/02/13/emerging-nations-embrace-internet-mobile-technology/) (accessed June 7, 2016).

The Future of World Religions: Population Growth Projections, 2010–2050, Pew Research Center, April 2, 2015, [www.pewforum.org/2015/04/02/main-factors-driving-population-growth/](http://www.pewforum.org/2015/04/02/main-factors-driving-population-growth/) (accessed June 7, 2016).

“Gartner Says 6.4 Billion Connected ‘Things’ Will Be in Use in 2016, Up 30 Percent From 2015” (Gartner press release), November 10, 2015, [www.gartner.com/newsroom/id/3165317](http://www.gartner.com/newsroom/id/3165317) (accessed June 7, 2016).

Global Open Data Index, "Tracking the state of government open data," Open Knowledge International, <http://index.okfn.org/> (accessed June 20, 2016).

Industry Edge, "HP Future Cities: Citizen-centric government delivering public value," Hewlett Packard Enterprise, 2014, [www8.hp.com/h20195/v2/GetPDF.aspx/4AA5-6074ENW.pdf](http://www8.hp.com/h20195/v2/GetPDF.aspx/4AA5-6074ENW.pdf) (accessed June 7, 2016).

Joshua New, "The Rise of the Citizen Sensor," Center for Data Innovation, February 24, 2015, [www.datainnovation.org/2015/02/the-rise-of-the-citizen-sensor/](http://www.datainnovation.org/2015/02/the-rise-of-the-citizen-sensor/) (accessed June 7, 2016).

Kate Meyer, "Millennials as Digital Natives: Myths and Realities," Nielsen Norman Group, January 3, 2016, <https://www.nngroup.com/articles/millennials-digital-natives/> (accessed May 31, 2016).

Lee Rainie, "Social Media and Voting," Pew Research Center, November 6, 2012, <http://www.pewinternet.org/2012/11/06/social-media-and-voting/> (accessed June 7, 2016).

Miguel Carrasco and Peter Goss, "Digital Government: Turning the Rhetoric into Reality," BCG Perspectives, June 5, 2014, [https://www.bcgperspectives.com/content/articles/public\\_sector\\_center\\_consumer\\_customer\\_insight\\_digital\\_government\\_turning\\_rhetoric\\_into\\_reality/](https://www.bcgperspectives.com/content/articles/public_sector_center_consumer_customer_insight_digital_government_turning_rhetoric_into_reality/) (accessed June 7, 2016).

Natasha Divac, "France's BlaBlaCar Buys Two Carpooling Rivals," *The Wall Street Journal*, April 15, 2015, <http://blogs.wsj.com/digits/2015/04/15/frances-blablacar-buys-two-carpooling-rivals/> (accessed June 7, 2016).

Natasha Khan, "Are cheap sensors and concerned citizens leading to a shift in air monitoring?" PublicSource, September 6, 2015, <http://publicsource.org/investigations/are-cheap-sensors-and-concerned-citizens-leading-shift-air-monitoring#.V365UZMrKV4> (accessed June 7, 2016).

Number of social network users worldwide from 2010 to 2019 (in billions), Statista.com, [www.statista.com/statistics/278414/number-of-worldwide-social-network-users/](http://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/) (accessed May 31, 2016).

Richard Dobbs, Sven Smit, Jaana Remes, James Manyika, Charles Roxburgh and Alejandra Restrepo, "Urban world: Mapping the economic power of cities," McKinsey Global Institute Report, March 2011, McKinsey & Company, <http://www.mckinsey.com/global-themes/urbanization/urban-world-mapping-the-economic-power-of-cities> (accessed May 31, 2016).

Rima Qureshi, Ericsson Mobility Report, <https://www.ericsson.com/mobility-report> (accessed June 20, 2016).

Roland Berger Trend Compendium 2030: Demographic Dynamics, Roland Berger Institute, March 2014, [http://www.rolandberger.com/expertise/trend\\_compendium\\_2030/](http://www.rolandberger.com/expertise/trend_compendium_2030/) (accessed June 7, 2016).

The World Bank, Mobile cellular subscriptions (per 100 people), 2011–2015, <http://data.worldbank.org/indicator/IT.CEL.SETS.P2> (accessed May 31, 2016).



**Read more about the trends shaping the world and get the tools  
you need to accelerate your transformation from now to next.**

**VISIT [HPE.COM/INFO/DX](https://www.hpe.com/info/dx)**





**citizen.nxt**



---

© Copyright 2016 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for HPE products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HPE shall not be liable for technical or editorial errors or omissions contained herein.

4AA6-6399ENW



SHARE THIS WITH YOUR NETWORK