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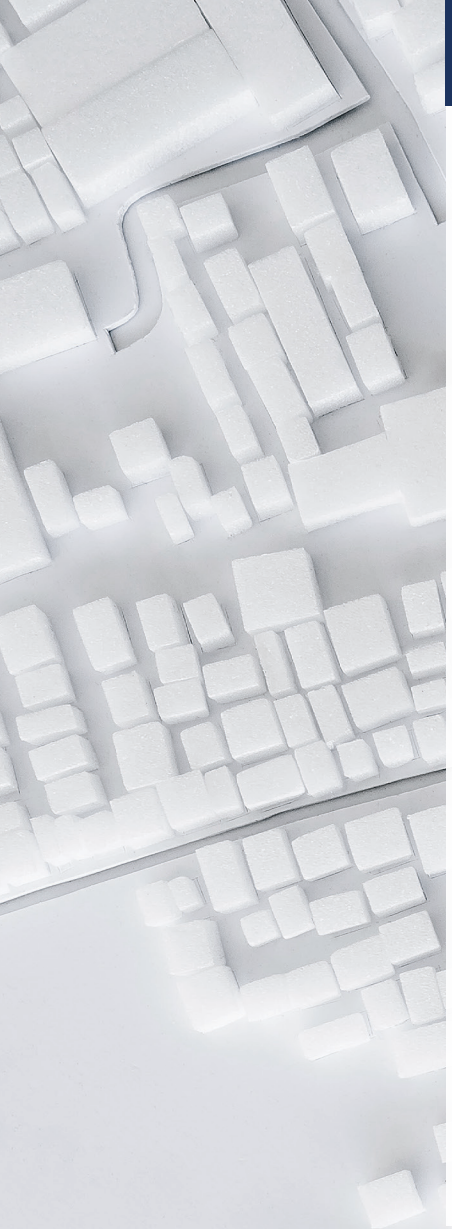

# McKinsey on Government



Number 3, November 2018

*McKinsey on Government* is a publication of McKinsey's Public and Social Sector Practice. Our objective is to share insights, new approaches, and experiences from our proprietary research and relationships across all aspects of government around the world at the local, state, agency, national, and supranational levels.

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# Understanding the customer experience with government

Government agencies that are unclear on what matters most to their customers risk wasting time and resources on the things that don't. Finding out is the first step.

Tony D'Emidio and Jonah Wagner

Following a public-relations crisis, a federal provider of insurance resolved to change. An independent task force assembled to investigate the issue declared that the agency had lost sight of its end customer, the policyholder. To make amends, the agency decided to invest in accelerating its claims process, where the controversy originated.

But then new research revealed that for most of the agency's customers, speedy claims resolution wasn't the biggest issue; what policyholders cared most about was getting an initial infusion of cash fast and having greater transparency into and understanding of what was happening with their claim so they could better plan for when it was paid. So, the agency decided instead to significantly expand its advanced-payment program while increasing communications with policyholders throughout the process to set and manage their expectations.

Therein lies an important lesson for the leaders of government agencies of all types: understanding precisely what matters to the customers you serve is essential to improving their experience.[1]

Yet most agencies don't. In a recent research effort, we set out to help close the gap between what agency leaders *believe* people want and what is *actually important* to them as customers.[2] The research highlighted many examples within and across services of how government assumptions diverged from what customers really cared about—for instance, speed of service matters less to them than transparency, and they care more about understanding their tax-filing options than the actual experience of filing their taxes. This article draws on that research to help agencies begin to understand what matters most to their customers and to establish a framework for agency leaders to better plan for and enhance customer satisfaction with government as a whole.

## Government's challenge

Understanding what drives the customer experience is particularly challenging in the federal government. Resources are one reason. Says Aileen Smith, former head of operations for the US State Department's Passport Services Directorate: "We, as government agencies, have to be resourceful. We don't have the same level of insight, research, or analytics that you'll find [in the private sector], but we have to do what we can with the information we have available to us."

The data that agencies rely upon are typically incomplete. Agencies are forced to wrestle with how to link overarching customer-satisfaction scores such as the American Customer Satisfaction Index to online surveys and wait times. Feedback from surveys conducted by call centers or online offers just a narrow window into the way respondents think and feel at a given moment. Operational data and performance measures may be tracked but typically sit in siloes across numerous legacy systems and are rarely linked directly to customer feedback to create a full picture of the customer's overall experience. Many government agencies deliver services through third parties, further blurring visibility into customer interactions. And current legislative restrictions make it hard to undertake direct-to-consumer research; even amid a wave of deregulation, it remains difficult for agencies to get a real sense of customers' needs and desires.

In our experience, government agencies that seek to overcome these challenges and build a holistic view of the customer experience are most effective when they follow three basic steps: putting themselves in the shoes of their customers, understanding their end-to-end customer journeys with the service, and isolating the moments that disproportionately shape their experience along the way.

## Step 1: Start with 'who'

It is not uncommon for a government agency embarking on a customer-experience transformation to realize early on that it lacks a clear understanding of who it actually serves. Unlike private-sector organizations, government agencies must aim to serve everyone within their mandated mission; they can't just ignore "undesirable" customers. In

addition, agencies are held to a high bar for fairness, which often solidifies over time into a principle of providing one-size-fits-all service. But a blind commitment to treating everyone exactly the same, however well meaning, can end up reducing the pressure on senior officials and frontline employees to truly understand the nature and individual preferences of those they serve.

Understanding what matters most to a diverse set of customers begins with understanding who these customers are. There is no "average" customer whose needs and behaviors reveal those of all the rest; a one-size-fits-all service often ends up fitting no one very well. Rather, creating a rich picture of a customer base requires macrolevel analysis of the core segments served, as well as analysis at the microlevel—of the traits, behaviors, needs, and beliefs of representative individuals within each broader group.

Across government, there is a common belief that agencies cannot (or perhaps should not) segment their market to provide differentiated services. This is a false conviction that stems from conflating two concepts: discrimination and segmentation. Discrimination implies some form of unjust treatment based on difference, while segmentation is a critical tool in understanding how different customers engage with and experience a service. Agencies should consider a broad set of demographic attributes, as well as behavioral factors, to help them deliver better services to more people. For example, when the Transportation Security Administration was looking to expand its popular precheck program for airline passengers, the agency identified segments of law enforcement, military, and other low-risk groups for whom the streamlined security-check process would be particularly well suited. By focusing on those segments and shifting them into the program, the agency quickly expanded access to its program without increasing risk, even as it simultaneously decreased wait time for travelers.

Beyond segmentation, agencies should seek to better understand the individual customers themselves. As Laura Furgione, former deputy director of the National Weather Service, describes it: "We worked hard to really embed with our users, understand their lingo, 'speak their speak,' so we could help them understand weather threats in their own terms." Developing customer profiles, or "personas," is one tool agencies can use to do this—effectively stepping into the shoes of individual customers to understand their mind-sets and beliefs. These personas oblige agencies to take the customer perspective in designing and delivering services—stimulating new and creative insights beyond the standard rules and procedures within which government employees are used to operating.

Combining both customer segmentation and personas can yield powerful results. A few years ago, one major airport recognized that its signage was confusing. So it identified four large segments of customers—families with children, business travelers, international visitors, and elderly couples—and created specific personas for each. Airport staff then attempted to

Understanding what matters most to a diverse set of customers begins with understanding who these customers are. There is no "average" customer whose needs and behaviors reveal those of all the rest.

navigate the airport from the perspective of a given customer profile—for example, an international visitor not fluent in English. This exercise helped generate more intuitive signage and led to the airport employing "ambassadors"—specialized customer-service staff who speak multiple languages and can answer questions. These changes helped the airport achieve a number-one ranking for customer satisfaction among its peer airports in 2017.[3]

### Step 2: Understand the customer journey

A taxpayer with a question about her federal income-tax return might consult with a friend or a tax preparer, call the Internal Revenue Service (IRS), explore IRS.gov, visit a taxpayer-assistance facility, or undertake some combination of the above. We call this the "I have a question" journey, encompassing any number and sequence of "touchpoints"—the individual points of contact between the agency and a customer looking for answers. Customer journeys are the set of end-to-end experiences, defined from the perspective of the customer, that constitute the life cycle of a customer relationship with a given agency or service. Mapping these journeys and understanding their importance is essential to any effort designed to improve customer experience.

Journey measurement is the biggest gap most government agencies face in understanding what matters to their customers. Across industries, journey satisfaction is a far better predictor of overall customer experience and business outcomes than touchpoint satisfaction. For example, a taxpayer calling the IRS call center with a question could have a positive experience on the phone (*the agent was helpful*), but her journey as a whole could be quite painful (*but I can't believe I had to call about something like this!*). Too many agencies only track touchpoint data, which leads them to invest in fixing problems in functional siloes rather than monitoring the journey from beginning to end.

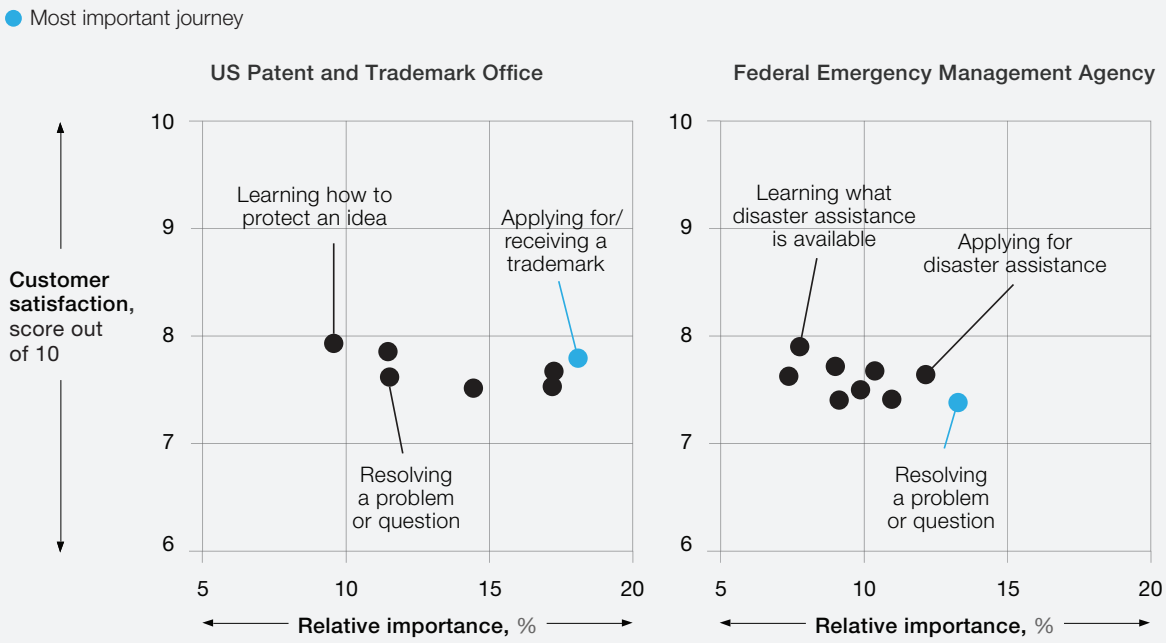
Our recent study provides a window for agencies into how people experience the journeys associated with their services. Certain patterns emerged across agencies—for example, in our analysis, the "I apply" journey emerged as one of the top two most important customer journeys. However, there was considerable variation in customer experience across services. Customers of the US Patent and Trademark Office tend to care most about their experience applying for trademarks. Disaster survivors, by contrast, care most about the Federal Emergency Management Agency's ability to resolve questions or problems with its applications for disaster benefits—providing reassurance during a difficult time. Although the process of applying for disaster assistance still matters to these individuals, other journeys matter more (Exhibit 1).

A journey-centric approach can help agencies prioritize where to focus their efforts. For example, customers filing their federal tax returns with the IRS care most about exploring their options and preparing and filing their taxes (Exhibit 2). However, after digging deeper, it turns out the most important part of the journey for customers is learning about their tax-filing options. Furthermore, our research shows that this is the part of the process that is the most difficult and the least satisfying for customers. The challenge the IRS faces is that this leg of the customer-experience journey is out of its control, as it is usually provided by third parties through nongovernmental channels. However, the agency's customers do not draw the same distinction—the journey is the journey, no matter who plays the primary role in shaping it. By zeroing in on the areas that matter most and by bringing in touchpoint-survey data and operational-performance metrics, the IRS and other agencies can better focus their attention and resources to improve the customer experience, whether done directly or indirectly within the broader stakeholder ecosystem.

Exhibit 1

## Not all journeys are equal in citizens' eyes.

**Prioritization of customer journeys by customer satisfaction vs relative importance**




Source: McKinsey Public Sector Journey Pulse Survey, Nov–Dec 2016

### Step 3: Pinpoint 'defining moments'

Within and across customer journeys, citizens have specific preferences about how they like to be served. Is the service reliable? Is it transparent? Easy to access? High quality? Is it worth the citizen's time and money? These "experience drivers," depending on the specific context, can have a significant impact on overall satisfaction—or no impact at all. Understanding and articulating the relative importance of these drivers can help clarify and focus efforts internally and externally to improve the citizen experience. At the end of the day, what we experience is a function of what we remember. And we are particularly good at remembering lousy experiences.

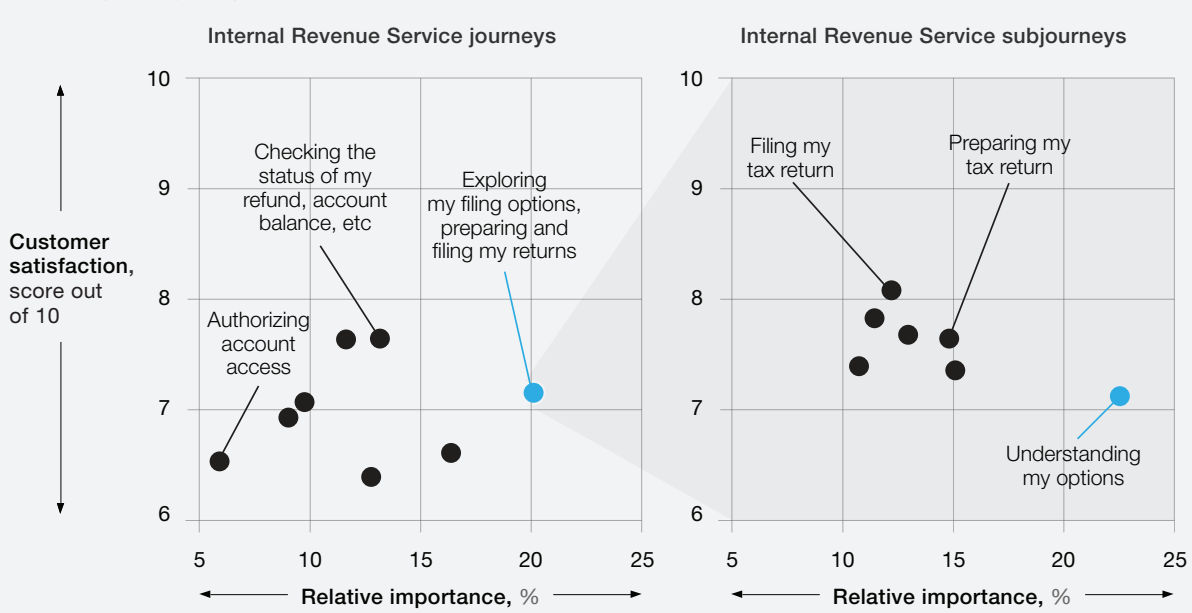
One bad incident—a rude customs agent, an unexpected notification for renewing a green card, an especially long airport-security line—can deeply color a customer's overall impression of an agency. Identifying where and when such negative defining moments occur can help enable targeted interventions that have a big impact on outcomes. Agencies that succeed in making bad incidents as rare as possible have more satisfied customers than those that don't.

However, the inverse isn't true for positive defining moments. Our findings fit with a growing body of behavioral-psychology research that shows that bad events have more power than good ones to shape

Exhibit 2

## The subjourneys within each journey illuminate what drives customer satisfaction.

**Prioritization of customer journeys by customer satisfaction vs relative importance**




Source: McKinsey Public Sector Journey Pulse Survey, Nov–Dec 2016

experiences. Moreover, people remember peak experiences more easily than ordinary ones. Our research shows that negative defining moments on average affect overall customer-satisfaction scores four times more than positive defining moments (Exhibit 3). Ask yourself: How many on-time package deliveries would you have to receive from USPS to overcome your disappointment if an irreplaceable family heirloom was lost in the mail?

Although it's important for any organization serious about customer experience to mitigate painful experiences, the task takes on a different kind of importance in government, where customers have nowhere else to go. Unhappy customers tend to generate a disproportionate amount of the cost to serve that agencies bear, for example, through problem phone calls, as well as risks, through lawsuits. Identifying and addressing these issues—even with temporary fixes—can build momentum toward deeper, longer-term improvement. Furthermore, our research suggests that customers who receive "excellent" resolution of their issues often experience even higher satisfaction than those who never had any issues at all.

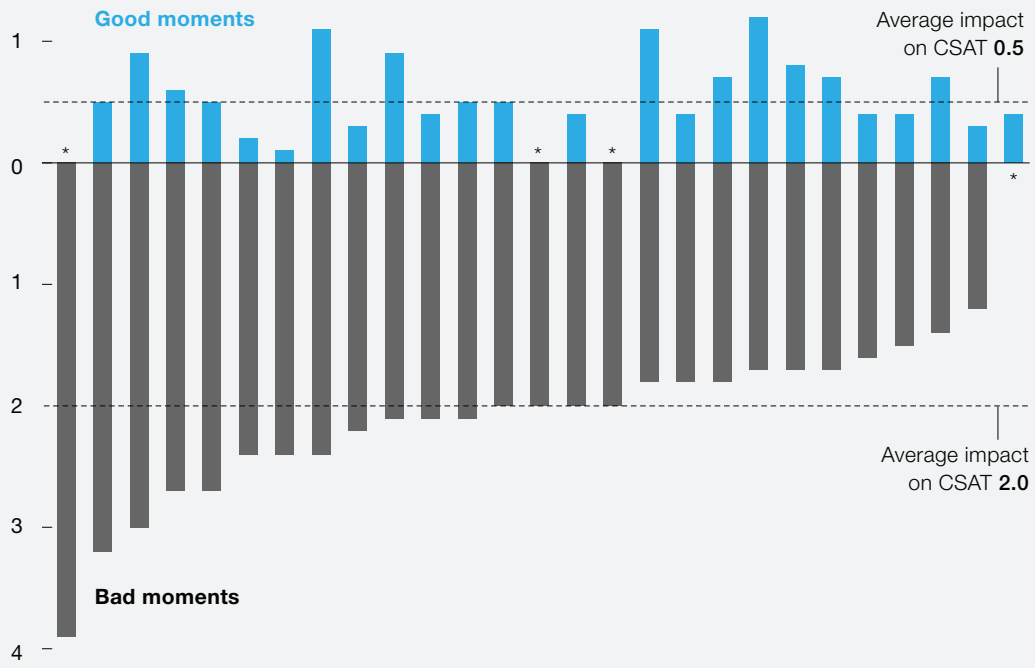
### Government's advantage

Building a true understanding of the customer experience is a daunting task in government. Even so, federal agencies have a number of unique advantages to draw upon.

Exhibit 3

## Bad 'defining moments' have a disproportionate impact on experience.

**Impact of defining moments on overall customer experience by government service,[1]** net change in average customer satisfaction (CSAT)




[1] Sample focuses on 27 services provided by the following US federal departments and agencies: Departments of Agriculture, Commerce, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, Interior, Labor, State, Treasury, and Veterans Affairs; Consumer Financial Protection Bureau; Federal Recreation Council; General Services Administration; National Weather Service; Office of Personnel Management; Social Security Administration; and US Postal Service.

* Services that appear with no "good" or "bad" moment impact had insufficient sample size to include.

Source: McKinsey Public Sector Journey Pulse Survey, Nov–Dec 2016

Federal government agencies collect operational data that are extensive and detailed but tend to end up substantially underused as a source of insight into the customer experience. These data span the full spectrum of interactions between individuals across channels. They include customer-touchpoint surveys as well as measurements such as processing time and the number of times a customer is handed off during a journey—metrics that represent the underlying measures of performance that shape the customer experience. Frontline employees can provide a wealth of insight into the experience of the customers they engage on a daily basis—through both qualitative and quantitative feedback. Linking these latent data sources to priority customer journeys offers a clear opportunity to generate actionable insights to improve the overall experience. This unique data advantage can also be used to create a comprehensive portrait of individuals across the milestones that shape their lives—receiving an education, buying a home, raising a child, retiring comfortably—in order to improve delivery of services overall.

Every agency looking to improve its customers' experience does so with finite resources and limited time. Understanding what matters most to people is crucial for setting priorities and making effective decisions about the steps to take to truly capture the benefits from listening to your customers and better engaging your frontline employees. ■

[1] Governments serve their citizens as well as an array of other constituents and stakeholders. In this article, the term "customer" refers to all those who make use of government services.

[2] Our research is based on a survey of more than 15,000 recipients on their experiences with 31 US federal services during late 2016. The survey was designed around the core set of customer journeys respondents experienced with a service. Results were analyzed using multivariate statistics to mathematically derive the elements of each journey that mattered most in shaping the overall customer experience.

[3] "North American airports effectively navigating construction, capacity challenges, J.D. Power finds," J.D. Power, September 21, 2017, jdpower.com.

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The authors wish to thank Kate Candon, Parth Chodavadia, Adrian Nelson, Kat O'Neil, and Rachel Riley for their contributions to this article.

# A smarter approach to cost reduction in the public sector

Most cost-cutting programs fail. To do better for less, governments need to build capabilities, harness data and analytics, and reinvest savings.

Tera Allas, Roland Dillon, and Vasudha Gupta

The demands on governments are greater than ever, yet many countries face tough constraints on public spending. Worldwide, total gross government debt increased from $51 trillion in 2010 to $65 trillion in 2016 (in real 2010 prices). Several of the world's major economies now have debt-to-GDP ratios approaching or exceeding 100 percent and fiscal deficits of 4 percent or higher, according to data from the International Monetary Fund.

In response, many governments have initiated cost cutting on a large scale. A new survey conducted by the McKinsey Center for Government gauged the experience of nearly 3,000 public servants in 18 countries that together account for 75 percent of global GDP. The respondents included officials in national, regional, and local governments as well as state-owned enterprises. The survey found that 43 percent of all public-sector transformation efforts over the past five years have had cost reduction as a core goal.

Cost cutting was one of the most frequently cited goals of transformation programs in the countries covered in our survey (Exhibit 1). One in ten transformation efforts had the sole focus of reducing costs, while one in three combined cost cutting with improvement goals, such as boosting outcomes and improving the pace and quality of service delivery.

The problem is that most of these cost-reduction efforts fail. Of all the cost-driven transformation programs by governments covered in our survey, only 19 percent were "very or completely successful" in meeting their goals, by the respondents' assessment.

What explains this dismal record? One explanation is that many change leaders are using the wrong approach to cost cutting. Our survey found that governments that make big budget cuts simply to "force" efficiency improvements are less likely to deliver and sustain the intended cost reductions. That might seem counterintuitive, but the numbers bear out this finding. Among all the cost-reduction efforts we surveyed, those that used direct budget cuts were 15 percent less likely to be successful (as assessed by respondents) than those that did not. Of all the government-transformation levers we examined in our survey, budget cuts were among those that had the highest correlation with change-effort failure.

That is not to say that budget cuts never work: some respondents to our survey did report instances in which direct cost reductions led to sustained improvements. As our survey findings make clear, however, such successes are the exception rather than the rule. If governments want to make sustained headway in containing costs, they need to look beyond budget cuts to a much broader, more sophisticated tool kit.

As our recent research on government productivity highlighted, the tools available in a cost-reduction effort include spending reviews, procurement optimization, and digitization. Our survey findings point to three additional, crucial actions that can double or triple the success rate of government transformation programs that involve cost reduction (Exhibit 2). When used in combination, these tools have an even greater positive impact on outcomes.

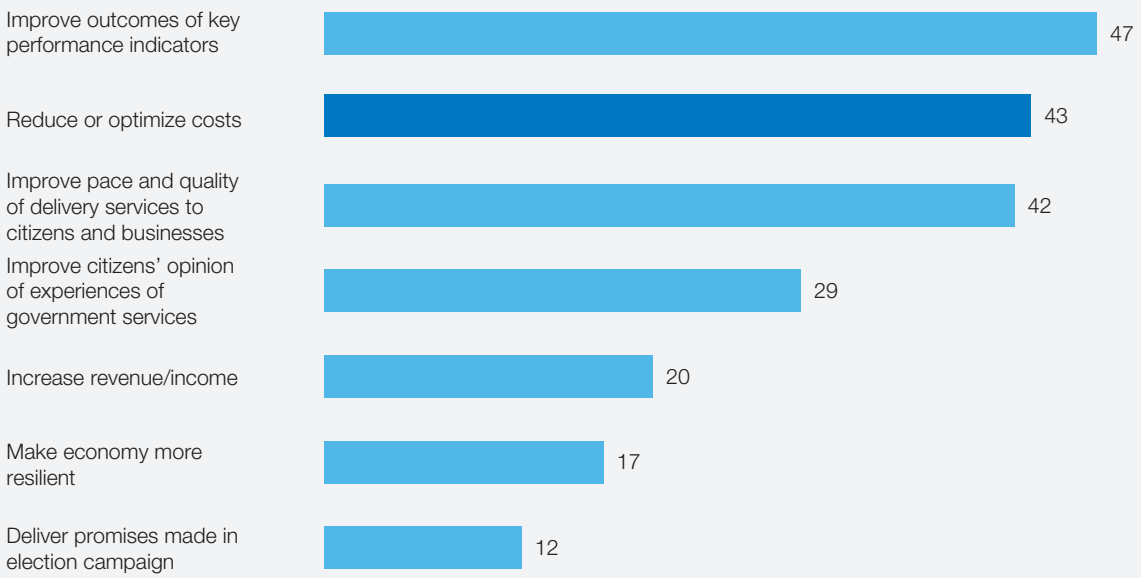
The first action is allocating sufficient personnel to implement the change. Our survey shows that this is one of the most critical success factors in any cost-reduction program. Among "very or completely successful" cost-focused transformations, 92 percent had sufficient personnel staffed. That was true for only 50 percent of "unsuccessful" cost-reduction efforts. This is unmistakable evidence that change efforts—even those aimed at saving costs—should not lack resources.

The second action is using financial savings from change initiatives to fund further reforms. Cost-focused transformations that used this approach were 46 percent more likely to succeed than were those that did not. Using savings to fund further improvements—for example, in infrastructure, services for citizens,

Exhibit 1

## Reducing or optimizing costs is frequently a key objective for public-sector transformation efforts.

**Share of transformation efforts that included objective,**[1] %




[1] As reported by respondents. Respondents weighted by GDP share of their country; unweighted total number of respondents = 2,909.

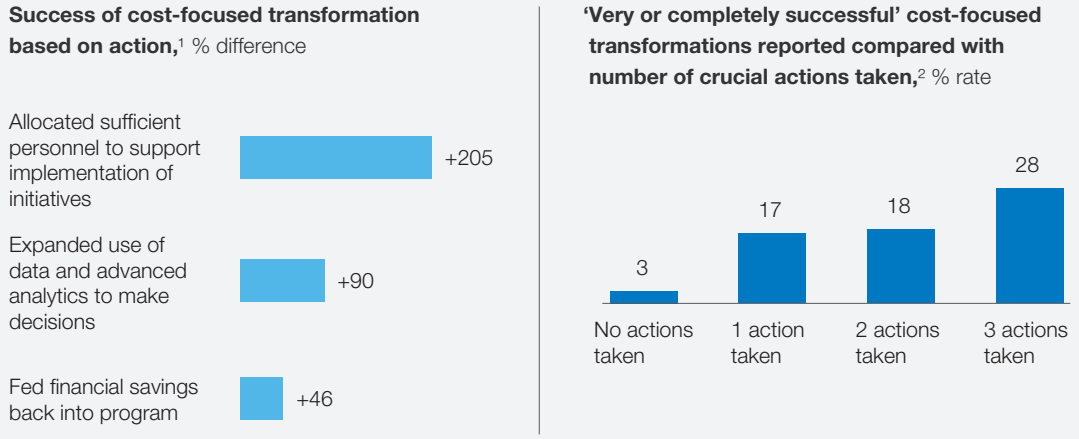
Source: McKinsey Center for Government Transformation Survey, December 2017

and civil servants' capabilities—appears to create a more meaningful purpose for cost-reduction efforts and to boost the motivation of the staff implementing the changes. This approach, however, might require governments to change their budgeting processes and decision-making time frames to enable ministries and agencies to "invest to save."

The third action is using data and advanced analytics, which point to a new horizon in effectively managing public finances. Cost-focused transformations that harness data and analytics to target their efforts are nearly twice as likely to succeed as those that do not, as shown by plenty of case studies. For example, one large public-sector agency we worked with used advanced analytics to optimize its fleet of 7,000 vehicles. It reduced costs by $10 million a year (or 20 percent), in part by cutting the use of short-term car rentals by 70 percent.

As analytics advances, governments can harness data to shape smarter cost-saving initiatives. For example, our analysis of primary- and secondary-education budgets in 33 countries found that spending per student increased by an average of around 30 percent in real terms from 2005 to 2015; it is questionable whether such increases are sustainable in the future. McKinsey's extensive analysis of data from the Program for International Student Assessment has pinpointed opportunities to achieve savings while improving education outcomes. For instance, technology in the classroom—often a significant expense item—yields dramatically different student outcomes depending on the equipment used. In one

Exhibit 2 **Transformations aimed at cost reductions can boost success by using a more sophisticated approach to data analysis and resource allocation.**




[1] Difference of transformations that included action vs those not including action being reported as "very or completely successful," as reported by respondents involved in cost-focused transformations. Respondents weighted by GDP share of their country; unweighted total number of respondents = 2,909.
[2] Crucial actions defined as allocated sufficient personnel to support implementations of initiatives, fed financial savings back into program, and expanded use of data and advanced analytics to make decisions.

Source: McKinsey Center for Government Transformation Survey, December 2017

region we studied, giving a single computer to a teacher raised student test scores six times as much as giving every student in the class a computer. In another region, installing a data projector in each classroom had twice as much impact on test scores as giving students computers.

Governments the world over must urgently find ways to do more—and better—for less. Before embarking on large-scale cost cutting, however, they should take a sober look at the success rates of such programs. There are smart ways to ensure that cost-reduction efforts not only achieve their targets but also support better outcomes for citizens. It is time for governments to harness the full strategic and technological tool kit to target savings better and use the released funds to shape a more effective, responsive public sector.

**Tera Allas** is a senior fellow in McKinsey's London office, **Roland Dillon** is an associate partner in the Melbourne office, and **Vasudha Gupta** is a specialist in the Gurugram office.

# How to create win–win public outsourcing contracts

To structure and manage complex contracts with the private sector, governments must have a range of skills and expertise. Six success factors are critical to these efforts.

Elizabeth Foote, Nick Osborne, and Aly Spencer

The private sector plays an integral role in how governments deliver goods and services to their constituents. In 2015, contracts with the private sector comprised 29 percent of government spending across Organisation for Economic Co-operation and Development countries, and this portion has remained consistent since 2007.[1] These agreements can be large and complex, span multiple years, and involve partial or complete outsourcing, privatization, or procurement of a particular good or service; examples include IT services, maintenance of defense platforms or prison operations, and trash collection.

Due to government reliance on private-sector vendors, effectively managing the contracting process is critical. When contracts are managed poorly, consequences can include cost overruns, financial problems with the private contractor, and poor service delivery. All these issues share the same root cause: poorly structured individual contracts and inadequate procurement processes. The US Government Accountability Office (GAO) has included contract management in its list of high-risk items over the past couple of decades. A core task for governments, therefore, is to ensure the right conditions are in place for contracts to succeed.

Getting it right requires creating contracts that are mutually beneficial for governments and suppliers—a significant challenge for public-sector agencies. Not only are these contracts typically complex but insufficient coordination, expertise, and resources across departments can result in a lack of focus on the most important areas. In our experience, six success factors can help governments select the right partners, craft effective contracts, and manage the arrangement well from inception to delivery. Many government agencies will also need to build additional capabilities and expertise to support this process; but the payoff, in the form of improved supplier performance and better stewardship of public funds, can far exceed the investment.

## The benefits and risks of public–private contracts

Given the scope of goods and services that governments must provide, private-sector companies are often invaluable partners. In many cases, outsourcing has been beneficial for all parties, helping public-sector organizations to maintain service levels despite tight budgets and complete ambitious capital projects. In the United States, for example, the Georgia Department of Transportation contracted with C.W. Matthews to rebuild the Atlanta I-85 bridge, which was completed in only six weeks, thanks in part to performance incentives.[2] In Australia, the New South Wales (NSW) government used an online vendor-management system to procure contingent labor for the Department of Education, which was able to make savings of nearly $770,000 over a ten-month period.[3] These examples, among many others, highlight the benefit of tapping capital, efficiency, innovation, and private-sector capabilities, to help meet the public sector's complex needs.

When contracting relationships don't function properly, however, governments can be faced with not only additional costs and subpar service but also negative headlines that can draw the ire of constituents. The collapse of UK construction and services company Carillion, which held a number of large public-sector contracts that proved to be less profitable than expected, raised concerns about government procurement processes and whether the financial stability of vendors should be included in the selection criteria.[4] Such incidents reinforce the value at stake in getting public outsourcing right.

## Essential elements of win–win contracts

Our work with governments and private-sector clients has highlighted six key factors that can maximize the potential of public-sector outsourcing contracts. This list can be a valuable tool for procurement and acquisition leaders seeking to improve their contract processes.

### 1. Identify key outsourcing objectives and tailor the request-for-proposal process accordingly

Before starting the tendering process, governments must clearly define the objectives they hope to achieve through outsourcing. For example, is the goal to reduce costs? Is it to introduce innovative solutions for improved customer service? Is it to improve speed and agility? Pinpointing the primary objective can ensure the request-for-proposal (RFP) process produces the best solution and identifies the right supplier while keeping the program on track, particularly if priorities or costs change. Ensuring that a program's aims are clearly defined, measurable, and quantified can also provide agencies with a fact base to make trade-offs should government priorities change.

Once the objective is clear, it must be aligned with the procurement process. For instance, an agency buying commodity products (such as standardized medical equipment or office supplies) could use price-focused eAuctions to deliver quickly at low cost. When outsourcing a large-scale managed service (for example, the management of a wastewater facility or a $500 million IT project), a detailed RFP process emphasizing project delivery and risk mitigation would be a better fit.

For new and innovative projects, it might make sense to have two to three vendors pilot the approach first. Designing the RFP process around defined objectives may well involve challenging the status quo, since relying on routine approaches will not necessarily produce the best outcome.

### 2. Get the requirements right

Requirements can be the single most important factor in achieving successful procurements. A lack of clarity or specificity at the beginning of a project can lengthen schedules and expand budgets. The GAO's report on the rollout of Healthcare.gov, for example, found that the Centers for Medicare & Medicaid Services incurred significant delays and cost increases—up to fourfold in some cases—due to changing requirements in the program's duration. These cost overruns were caused in part by technical requirements that were unknown at the start of the contract.[5]

Governments should be aware of several factors when defining contract requirements. First, it is important to specify parameters at the right level of detail. In many cases, this task involves highlighting a program's outcomes rather than specifying the inputs. For instance, if an agency outsourced telephone support with the goal of improving availability, requirements that focus on uptime and response time will likely produce better outcomes than just focusing on staffing levels. This focus allows the private sector the flexibility to determine the most cost-effective and innovative way to deliver.

Second, getting the requirements right the first time is important. Ambiguity forces private-sector companies to build in a risk buffer, often inflating bids. To do this effectively, governments must have a good understanding of the cost implications of their requirement choices. Tools such as linear-performance pricing and clean-sheet analysis, which are routinely used in the private sector, can help pinpoint "should cost" pricing. This information can then be used to make trade-offs between costs and other requirements.

Last, in long-term or complex contracts, requirements should be sufficiently flexible to accommodate unavoidable changes in demand. This leeway is particularly crucial in technology outsourcing since it will continue to advance significantly over the course of a typical three- or five-year contract. Similarly, pricing may need to be flexible, particularly for raw material prices that fluctuate with the market. Understanding these pricing and market dynamics and structuring contracts to accommodate them can prevent costly renegotiations, contractor financial difficulties, and overruns down the road.

### 3. Promote competition from the right mix of suppliers

Public-sector organizations often require "fair and open competition." However, this standard is often not enough to ensure the best vendor is selected for a given project. For instance, an RFP that bundles sole-source and non-sole-source goods may compete "fairly and openly" and still result in a suboptimal outcome because only the sole-source provider can serve the entire scope and may not the best vendor for the non-sole-source good. In a similar fashion, lengthy processes or onerous qualification requirements can effectively limit vendor pools, a risk particularly high for small businesses.

Government agencies must also consider how their processes support their ideal market structure. For example, the NSW government designed its contingent labor program to successfully encourage participation of regional companies and small and medium-size enterprises through a number of design features, including a simple online portal that gives prospective suppliers the ability to apply at any time during the life of the contract. In addition, the program incorporated reduced insurance requirements for vendors.[6]

Goals such as integrating new, smaller, nonprofit, or other nontraditional suppliers will often require the government to take on different roles, such as program integrator, or deploy new tools in the process. Using approaches such as vendor days can help the government understand how it can best enable its goals through these types of process innovations. In designing the process, government agencies should recognize and plan for how the market is likely to evolve during the tendering process and during the contract. The UK Ministry of Justice, for instance, had a clear objective to develop a diverse list of vendors when designing its Transforming Rehabilitation program. It succeeded in receiving more than 700 registrations of interest at the start, including many from the public and not-for-profit sectors. However, as the National Audit Office (NAO) reported, the desired market construct did not materialize, as not-for-profit bidders were unable to achieve the desired economies of scale, take on sufficient risk, and verify their financial and commercial standing during the tendering process, with only 19 bidders completing the process and five regions where there was only one compliant bid.[7]

Governments should carefully consider the criteria used to evaluate supplier bids. If the primary objective is cost savings, it makes sense to focus on price; if the project is particularly risky, it may be worth emphasizing capabilities or performance. Indeed, evaluating technical ability may require innovative approaches. For instance, in some IT tenders, "bake offs" are increasingly being used, whereby a short list of bidders is invited to develop prototypes in a two- to four-week process to demonstrate capabilities before the government selects a contractor for the full project.

### 4. Align objectives with incentive mechanisms

Even when the right partner is selected, misaligned incentives and poor performance management can still undermine a project. For example, according to the GAO, the US Citizenship and Immigration Services Transformation Program, which sought to enable electronic management of the immigration benefits process, faced multiple delays and cost overruns in part because of difficulties in monitoring contractors. In one case, the agency responsible for managing the contract lacked information and clearly defined metrics to measure contractor performance.[8]

Setting up effective vendor management is a difficult but important task in establishing successful relationships (see sidebar, "Several principles can help achieve alignment between vendor and contractor"). At a base level, each party to any agreement must have incentives to "do the right thing" for the project at all times. When done well, these incentives can generate tremendous value. In the United Kingdom, the NAO reports that the Crossrail

program's well-defined roles and responsibilities for different parties and a clear performance baseline continue to help facilitate collaboration among suppliers, reducing costs by £3 billion.[9]

### 5. Ensure sufficient data transparency and ensure it is used well

In our experience, many problems in outsourcing arrangements stem from an asymmetry of information and overall lack of communication from both parties. Without a "single version of the truth," contractors and public-sector officials can unwittingly pull in different directions, particularly if there are different views on last price-break opportunities, price paid, and volume forecasts. The GAO, for instance, highlighted the risks of inconsistent data on Department of Defense contract management and future spending.[10]

To make contracted partnerships successful, transparency around data and information is critical. While this doesn't mean contractors should have unlimited access to government data or vice versa, it does mean governments and contractors should share relevant data, such as cost models, and have a shared understanding of where the risk lies (including further downstream in the supply chain). Defining responsibility for data ownership and stewardship enables both governments and suppliers to function more effectively and quickly resolve any challenges and disputes should they arise.

## Several principles can help achieve alignment between vendor and contractor

**While every agreement is unique, several principles can help achieve alignment between vendor and contractor:**

- Clarify the responsibilities of each party and ensure accountability measures are in place.
- Be transparent about risks and ensure that their natural owners have the authority to mitigate. If the private sector is not well equipped to address risks, it can lead to cost overruns, for example, if higher volumes materialize.
- Include planned improvements in the contract where applicable, such as incorporating price efficiency improvements into the contract from the year they are expected.
- Use service-level agreements with something at stake (such as financial incentives) for the vendor to align with your business objectives (such as service performance).
- Adjust the contract to align with the complexity and uncertainty of the work. An outcomes-based or firm-fixed-price contract, for example, is more suitable for standardized activities, whereas a time and materials contract may make more sense for a highly complex project where the output is not well defined.
- Align payment terms and schedules to the quantity and type of work being delivered for outcome-based and firm-fixed-price contracts. In facilities construction, where vendors typically have up-front costs, a contract that only allows "per time of usage" pricing will require a vendor to cover its capital expenditures on a variable cost basis. This approach can lead to inflated rates if the contract is renewed.

In many cases, the problem lies not in the willingness to share information but in simply having the right analytics engine and data systems to support robust data management. Without sufficient rigor in data management, it can be more difficult to detect volume discrepancies and incorrect pricing.

### 6. Retain in-house capabilities to monitor contracts and ensure appropriate governance

The government's responsibility for outcomes does not end once a contract is signed. However, given pressures on public-sector budgets, the retained organization can sometimes be inadequate to monitor contracts. Singapore's Auditor-General Office, for example, found that the Ministry of Health made payments to contractors without verifying that costs were reasonable. Critics continue to call for investments in training on public procurement within that department.[11]

Further, public-sector staff may rotate to other departments during contracts, especially those of longer duration. In such instances, institutional knowledge may be lost, both about an existing contract and the supplier landscape more generally. Ensuring that a dedicated team remains in place is therefore essential for monitoring performance and setting up subsequent contracts.

A survey of UK local government officials by the law firm Ashfords found that more than 80 percent of respondents classified "sufficient in-house resource to monitor and measure performance and to undertake contract management" as important or highly important in "ensuring the success of outsourcing."[12] To avoid an underperforming contract, a public-sector agency should set up a retained organization with the skills and capabilities to do three things:

- Monitor performance on the contract and enforce service-level agreements.
- Work with the contractor to incorporate new requirements or changes as needed throughout the life of the contract.
- Decide on key requirements and new designs or technical architecture for the next contract so that the government is not reliant on the incumbent to design the future solution.

## Next steps: How to execute

No matter how a government is currently performing on these six success factors, they can improve their ability to execute these win–win arrangements by focusing on core enablers. Procurement and acquisition leaders can determine their needs by answering questions in the following areas:

### Ensure the right relationship with rest of the business

- How aligned are procurement and acquisition with the internal customer?
- How often do they engage with program officers to determine whether third parties can help the department or agency meet its goals?
- Would you characterize the relationship between program officers and procurement and acquisition as a strategic "partnership" that works together on how vendors can best serve the mission or as a "customer–supplier relationship" (for example, the program officer requests, and procurement and acquisition complies and delivers)?

### Retain the right talent and capabilities, appropriately aligned to contracts

- Have you segmented your contracts and matched teams and capabilities appropriately? For instance, large and complex agreements will likely need dedicated teams; for medium-size contracts, proven methodologies and an at-scale industrial negotiating engine are important;

with smaller contracts and commodities, strong category management and small contract aggregation will likely suffice.

- Are the procurement teams prepared to develop innovative solutions if required and not just accept the status quo?

- Does your team have an independent perspective on how much the procurement "should cost" based on vendor economics and how vendors will expend money to achieve the targets in the contract?

## Maintain rigorous processes and life-cycle management

- Is procurement using the most effective processes and timeline for the complexity of the goods and services being purchased?

- Do vendor-performance reviews happen regularly and involve both program and procurement offices?

- Are change orders, modifications, and renewals handled with the same discipline as initial procurements?

In an era of tight budgets and heightened scrutiny on spending, the government's ability to extract more value from public-sector outsourcing is crucial. With targeted investments in cross-department coordination, capabilities, and performance monitoring, procurement and acquisition leaders will be positioned to achieve better outcomes.

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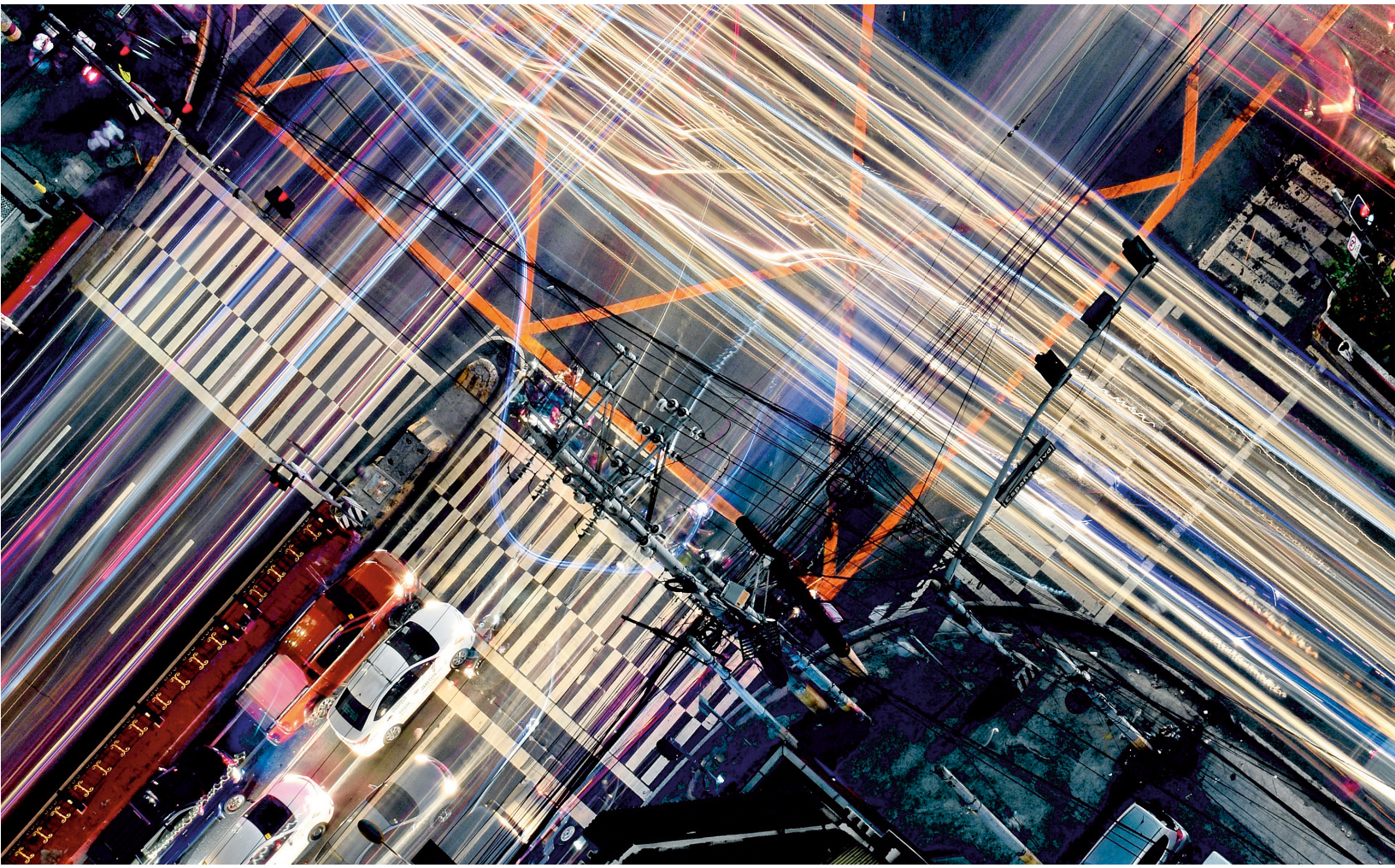
# Making Southeast Asia's cities smarter

The latest generation of smart technologies can improve quality-of-life indicators by 10 to 30 percent.

Diaan-Yi Lin, Mukund Sridhar, and Jonathan Woetzel



Southeast Asia's future is inextricably tied to the fate of its cities, which are home to one-third of the region's total population but generate more than two-thirds of its GDP.[1] Urbanization is fueling economic growth, but the breakneck pace has left many cities struggling to provide adequate housing, infrastructure, and services to meet the needs of a surging population.

While the urban challenges across Southeast Asia have been growing in scope, new technologies that could tackle some of these issues have reached maturity. Hundreds of cities around the world, including some pioneers in Southeast Asia, are deploying these solutions to become "smarter." The region as a whole can build on these early efforts, benefit from the lessons learned, and make better use of technology to make the urban environment work for the people who inhabit it.

A smart city incorporates data and digital technologies into infrastructure and services—all with an eye to solving specific public problems and making the urban environment more livable, sustainable, and productive. Cities still need to invest in fundamental systems and services, but they can use smart solutions to get more capacity and life span out of their infrastructure assets and deliver for their residents in a more effective way.

## Governments, companies, and residents are turning cities around the world into smarter ecosystems

Cities are complex environments with millions of moving parts, and managing them is no small task. But cities now have data and digital tools at their disposal to tackle a wide range of public problems. Sensors, cameras, and smartphones add a layer of digital intelligence over a cityscape, capturing a stream of real-time data on everything from traffic and transit to air pollution, weather, crime, energy use, and much more. Analytics systems and mobile apps translate this data into alerts, insights, and tools that empower users—whether city agencies or individual residents—to make better decisions. When millions of those decisions add up, they have positive impact on the city's overall performance. Less time is wasted in traffic and queues, and health and safety improve. Energy, resources, space, and investment are utilized more efficiently.

While good management is a critical element in a smart city, governments are not the only actors. Smart cities are not just top-down initiatives; they actively engage corporations and residents in making the overall ecosystem more efficient. In fact, many of the innovations that are changing the fabric of cities worldwide, such as e-hailing and smart office buildings, are revenue-generating ventures introduced by private-sector companies. Companies operating effectively in this space have identified public problems and come up with digitally enabled solutions, many of which can be introduced quickly and cost-effectively.

Recent research from the McKinsey Global Institute (MGI) examined how the current generation of smart-city technologies can perform in a variety of urban settings worldwide. It found these technologies can improve many quality-of-life indicators by 10 to 30 percent. They can save time, improve public health and safety, create a cleaner and more sustainable environment, and foster a sense of community and civic engagement. This article, and the discussion paper from which it is drawn, takes a more focused regional view of smart cities and their potential in Southeast Asia.

## Smart cities are poised to have significant and broad-based impact in Southeast Asia

Cities across Southeast Asia are primed to take advantage of smart solutions. Spending power, digital literacy, and smartphone penetration have improved across the region. Many cities now have the backbone communications networks in place and have begun the process of digitizing some government departments and public-facing services. At the same time, many fast-growing cities are a blank canvas where infrastructure can leapfrog, unhindered by outdated technology.

Dozens of smart solutions are available today focusing on every domain of city life: mobility, social infrastructure, the built environment, utilities, security, community, and the economy (Exhibit 1). Each city has to set its own priorities regarding which ones to deploy and the shape its smart transformation will take. Those with high crime rates might focus on deploying tools such as predictive policing, real-time crime mapping, and gunshot detection. Cities with pervasive air pollution might install comprehensive networks of air-quality sensors. Real-time data can enable officials to zero in and address the biggest sources of pollution; data can also be delivered to the public via smartphone apps so that individuals with health issues can take their own protective measures.

Building on MGI's global research, we find substantial potential for the current generation of smart technologies to improve the urban environment in Southeast Asia (Exhibit 2). Building automation systems, traffic solutions, waste-management systems, and other smart systems, for example, could potentially eliminate up to some 270,000 kilotons of greenhouse-gas (GHG) emissions annually. Combining smart solutions in mobility, crime prevention, and emergency response could save some 5,000 lives that are now lost each year to traffic accidents, homicides, and fires. Intelligent traffic and transit systems could save up to eight million person-years in annual commuting time. Introducing smart solutions into healthcare could reduce the region's disease burden by 12 million disability-adjusted life years—not only extending overall life expectancy but also adding years of good health. By creating more efficient and productive environments for business and hiring, Southeast Asia could add almost 1.5 million jobs. Residents could also save as much as $16 billion annually as smart solutions contribute to better housing options and lowering energy bills.

All told, smart solutions can help cities make significant or moderate progress toward meeting

**Exhibit 1** **Smart cities in Southeast Asia can deliver real quality-of-life improvements.**

260,000–270,000 **kilotons of greenhouse-gas emissions avoided,** equal to the total emissions produced by Laos

4,900–5,000 **unnatural deaths averted,** equivalent to 50% of Malaysia's yearly total

8 million–12 million **disability-adjusted life years (DALYs) reduced,** more than the total DALYs for all of South Korea

1.2 million–1.5 million **new jobs created,** equivalent to 20–30% of the workforce in Bangkok, Jakarta, and Manila

$9 billion–$16 billion **savings on the cost of living,** equivalent to 2–4x Brunei's total household expenditure

6 million–8 million **person-years saved in commuting time,** 2x more than Singapore's workforce spends commuting

70 percent of the UN Sustainable Development Goals. However, the scope and shape of impact will vary in different urban settings across the region.

## Cities across Southeast Asia have very different starting points and priorities that will inform their deployment of smart solutions

Although the ten nations of the Association of Southeast Asian Nations (ASEAN) are working to achieve deeper economic integration, the hallmark of the region remains its diversity—and not only in language, culture, and ethnicity. These countries have widely varying forms of government, economic systems, levels of technological maturity, and human-development indicators. Some have young and growing populations, while others are aging. Per capita income can differ up to 50 times among various countries.

The region's cities similarly resist easy categorization. It is harder to make comparisons or generalizations about the cities of Southeast Asia than those of Europe or South America. The digital transformation of Southeast Asia's urban areas is not unfolding in the same way as those of China and India, where national governments are implementing national visions across broad "tiers" that encompass hundreds of cities.

One key finding from MGI's global research on smart cities is how heavily each city's unique characteristics influence the results various smart solutions can deliver. The state of its legacy infrastructure systems, its physical layout, and its baseline indicators (such as crime rates and commuting times) all play a huge role. This underscores the importance of each city's starting point. The four archetypes below reflect these differences in Southeast Asia:

- *"Smart-city sandboxes."* These cities have already built robust and comprehensive high-speed communication networks and implemented dozens of smart applications covering every domain of urban life. They can now turn to developing next-generation technologies and creating new and better experiences for residents. Today, Singapore is the only city in Southeast Asia that fits this category. It is not only a standout in Southeast Asia but also ranks among the most advanced smart cities globally.

- *Prime movers.* These are the region's largest primary cities, and they have the potential to touch millions of lives. Major physical and social infrastructure systems are in place, but they are often strained beyond capacity and in need of costly retrofits and expansions. Today, pervasive inefficiencies affect the quality of life, and these cities can capture big wins from applying smart solutions to these issues. The sheer scale of these cities makes smart-city initiatives more easily viable even at modest levels of adoption.

- *Emerging champions.* These are midsize cities with infrastructure that can benefit from more integrative solutions. They tend to need large-scale investment to get to the next phase of growth and development, but their financial capacity is typically constrained because of their relatively smaller scale. Digital solutions can often deliver high-value, cost-effective impact and expand access to services.

- *Agile seedbeds.* With less than a million people each, these cities can be nimble in piloting and scaling up targeted smart-city applications. Some are on the cusp of rapid growth, and smart planning can manage that process sustainably. In Vietnam, for example, Da Nang is highly exposed to flooding and storms, making resilience one of its prime objectives. The city has developed models that employ data to assess climate risk; these feed into systems that give residents early warnings and inform planning efforts to build more resilient housing units for low-income residents.

For cities around the world, mobility is often the logical first place to begin applying technology to

improve the quality of life. When millions of people share a limited space, their ability to move and circulate freely is critical to the way they experience the city. Congestion is one of the key productivity drains in Southeast Asia, exacting a toll that has been estimated at 2 to 5 percent of a country's GDP. This is an issue in every major city across the region—and a recent index ranked Bangkok and Jakarta as two of the three cities with the worst traffic gridlock in the world. As urban populations soar, traffic often slows to a crawl, and taking public transit may involve navigating a crush of people. Not only are commutes one of the biggest daily inconveniences for residents, but cars also generate GHG emissions and pollution when they spend a large proportion of time idling.

Intelligent syncing of traffic signals, for example, prevents backups at intersections. Smart-parking apps point drivers directly to available spots, eliminating time spent fruitlessly circling city blocks. Cities in which buses are the primary mode of public transit also stand to gain from these traffic measures. Adding Internet of Things sensors to existing infrastructure can help crews perform predictive maintenance on equipment, fixing problems with buses and metro lines before they turn into breakdowns and delays. Cities around the world have new types of digitally enabled transit options, including bike sharing, personal-mobility devices, on-demand minibus services, and e-hailing.

A city's built environment needs to evolve along with the needs of its population. Across Southeast Asia, there is a pressing need to build more housing and infrastructure—and to do so quickly, cost-effectively, and sustainably. Making the built environment smarter starts with using modern construction approaches, tools, and methods for higher productivity. It also involves managing properties and their utility consumption more effectively. Data and technology tools can help various stakeholders build cheaply and quickly without compromising on quality or environmental impact.

### Capturing the potential of smart cities in Southeast Asia will take bold action from both the public and private sectors

Urbanization can be a critical factor propelling Southeast Asia to the level of economic and human development, but only if growth is managed well. Cities need to act now to address growing environmental stresses and particularly to combat climate change and improve their resilience as its effects become apparent.

Private-sector companies that find ways to contribute to these public goals can find substantial market opportunities across Southeast Asia. We estimate that the market for smart-mobility applications could be as large as $70 billion, while opportunities to make the built environment smarter could be worth up to $26 billion. But operating within smart cities is not like operating in any other market. Companies may need to change their approaches, capabilities, and willingness to partner.

Cities around the world have new types of digitally enabled transit options, including bike sharing, personal-mobility devices, on-demand minibus services, and e-hailing.

The three imperatives below can shape the strategies of both public- and private-sector organizations:.

- *Plan.* Making a city smarter starts with articulating a strategic vision and goals—and since the entire point is to respond more effectively and dynamically to the needs and desires of residents, any strategy has to start with people rather than technology. Engaging the public from the outset rather than after smart solutions are introduced can secure community buy-in. The genesis of Malaysia's iClean Selangor app, for example, was a survey of almost 10,000 respondents. Respondents clearly prioritized a waste-collection system, and the iClean Selangor app addressed that. Residents submitted pictures of rubbish in specific locations, enabling more precise deployment of sanitation services to clean up. Within three months, the frequency of reports had declined from a high of 50 to 60 per day to two per day.

  Cities can now take a data-driven approach as they pursue clear quality-of-life goals. Collecting and analyzing data on public-transit usage, for example, can also help cities make better decisions about routes, intervals, and where to invest. Singapore's Land Transport Authority used anonymized data from commuter fare cards to identify hot spots and better track and manage bus fleets, making adjustments that have reduced the number of bus services with crowding issues by 92 percent.

  While it is important for city governments to outline a vision for the future, the rapid pace of technological change means that they have to retain some flexibility to experiment and recalibrate. Cities also need to consider how to pair smart technologies with complementary policies and investment in hard infrastructure.

  Companies with aspirations to become urban-solution providers need to navigate a dynamic and complex ecosystem, including different layers of government and multilateral institutions that often fund such initiatives. They may need to add new government-relations capabilities to understand how the public sector works and devote time to engaging thoughtfully with local leaders about how to meet their city's needs.

- *Provide.* Cities can no longer think of data and smart-city tools as costly capital expenditures. They are increasingly necessary operational investments. Even when fiscal resources are scarce, there are ways to devise sustainable models for applications to take off such as monetizing data, offering development rights, modifying zoning restrictions, or coming up with creative models that can generate revenue for private-sector providers. Low-income cities may be able to jump-start progress by creating open-data portals, which make raw information available for private-sector innovation that does not require any public investment but could nevertheless improve the quality of life for residents.

  Cities facing tough choices will have to prioritize the practical over the flashiest new technologies. Installing digital systems behind the scenes to manage traffic, coordinate networks of hospitals, or cut down on bureaucratic paperwork may yield more impact than highly visible touchscreens on the street. Singapore's OneService app, for example, solved the confusion of dealing with multiple government agencies for municipal issues. By consolidating both back-end architecture and front-end services, the app brought together the services of 11 partner agencies and 16 town councils. Residents now have one touchpoint for reporting their concerns, and the agencies themselves can pool resources and collaborate more closely.

  Companies need an intimate understanding of a city's context so they can anchor their offerings

and value proposition to the real needs of residents. They may need to steer their potential government customers toward solutions that can make a visible difference in their constituents' lives—and away from gimmicks that garner headlines but ultimately fail to create headway thereafter. Simple and scalable solutions tend to gain traction and users, enhancing value for the public and solution providers alike.

- *Partner.* Neither the public nor the private sector can build smart cities alone. Many of the critical services are public goods for which the public sector is the natural owner. But a city government does not have to fund and operate every type of service and infrastructure system on its own.

  Technology is reconfiguring traditional roles and divisions of labor between government agencies and private providers. It makes sense to identify those areas where city agencies can step back and make room for other players, including private-sector companies, state-owned utilities, universities, foundations, and nonprofits. Some cities actively cultivate the ecosystem approach by creating consortia, partnerships, and even physical collaboration spaces. An ecosystem requires not only cooperation but also technical compatibility. Forming alliances, setting industry standards, and shifting toward open interfaces may help both companies and cities move forward.

  Public–private partnerships are crucial today, but over time, this distinction may be less significant. For example, Beeline, an on-demand transit service in Singapore, was initiated through a government unit and piloted by the government. But it was rapidly spun off to be operated by private service providers, with minimal impact on users. In Thailand, Phuket Eagle Eyes, an initiative to collect video feeds from a wide closed-circuit-television (CCTV) network is supported by 700 CCTV feeds from public agencies, but it has the potential to be supercharged by incorporating the CCTV feeds of private security systems.

Despite their varied starting points, priorities, and capabilities, cities across Southeast Asia can cooperate to deploy smart solutions on a much bigger scale. Solutions become more valuable as they add active users and the stores of data grow. Just as trade and digital flows link the region, smart cities are yet another area where integration can speed progress through the sharing of data, best practices, and open-source tools. The most advanced cities may be able to assist others in developing technological capabilities and specific apps. But it will also be valuable for the region's lower-income cities to share with one another what they are learning about where digital innovation can yield the greatest impact.

[1] We consider cities with more than 200,000 residents.

This article was first published as the executive summary to a longer MGI report, *Smart cities in Southeast Asia.*

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# The economics of homelessness in Seattle and King County

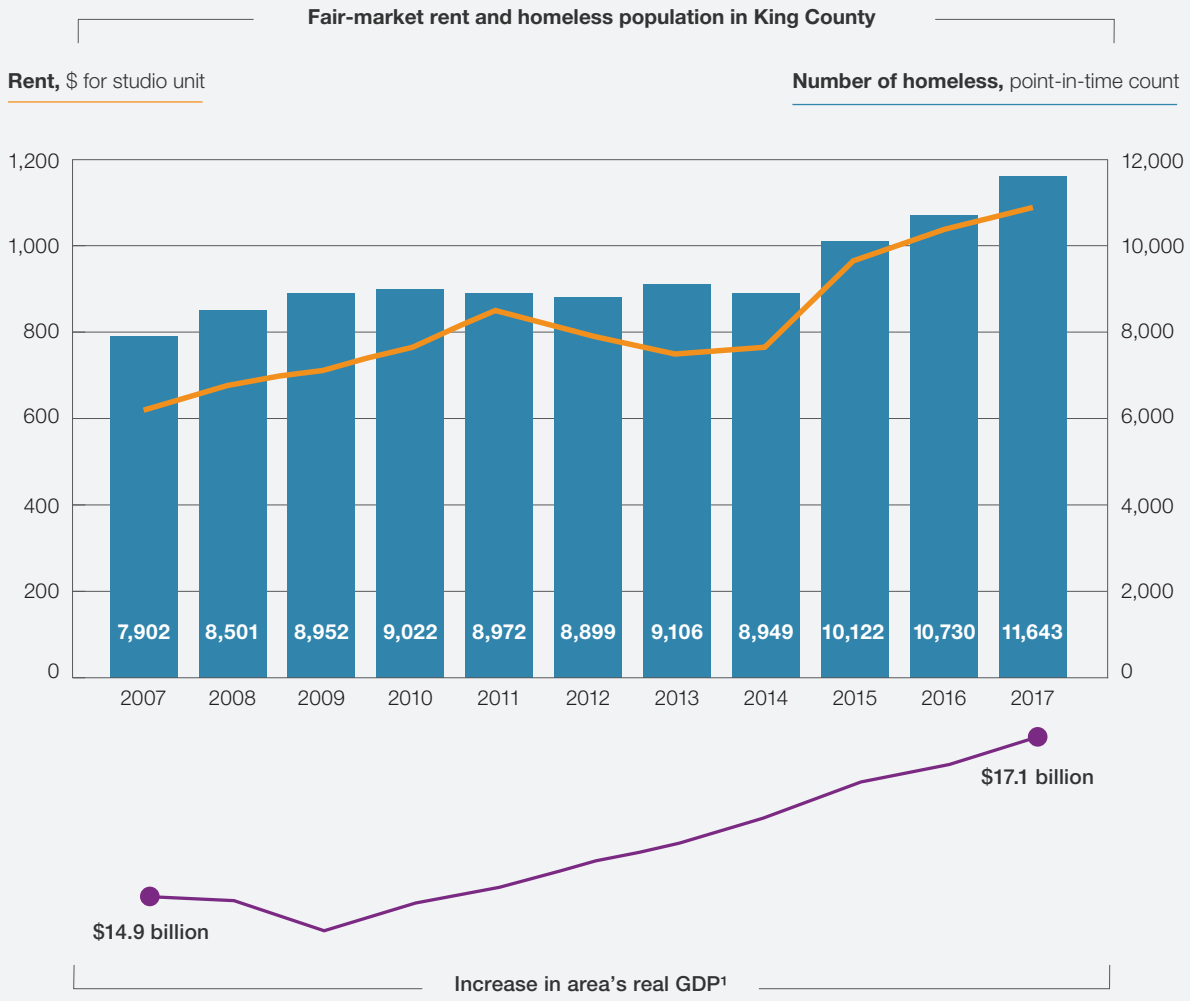
Can a rising tide lift all boats? Here is a quick primer on the state of play in one fast-growth market.

Maggie Stringfellow and Dilip Wagle

Affluent coastal cities, such as Seattle in King County, Washington, are experiencing a downside of economic growth—rising homelessness. On a single winter night in 2017, volunteers counted 11,643 people experiencing homelessness in King County, a number that represented an increase of more than 9 percent a year on average since 2014. Almost half were sleeping outside rather than in an emergency shelter.

The rise in homelessness cannot be explained by population growth or rising poverty, as there has been little of the former, and the latter has fallen. Exhibit 1 suggests the real cause. It shows how homelessness has risen in line with the fair-market rent (FMR), which in turn has increased in line with the county's strong economic growth. During the financial crisis of 2008, when poverty and

**Exhibit 1** **Rent increases in Seattle's King County show a strong correlation with homelessness.**




[1] Real GDP for January 1 of each year, measured in 2009 dollars, not seasonally adjusted.

Source: Fair-market rents and point-in-time (PIT) count from US Department of Housing and Urban Development; King County 2017 PIT count administered by All Home; US Federal Reserve Economic Data

unemployment rose, homelessness was relatively stable. But when the economy took off in 2014, so did rents. Since then, the FMR has risen by more than 12 percent a year on average.

The result is a dearth of affordable housing and rising homelessness. And without a new approach to the crisis, it can only deepen.

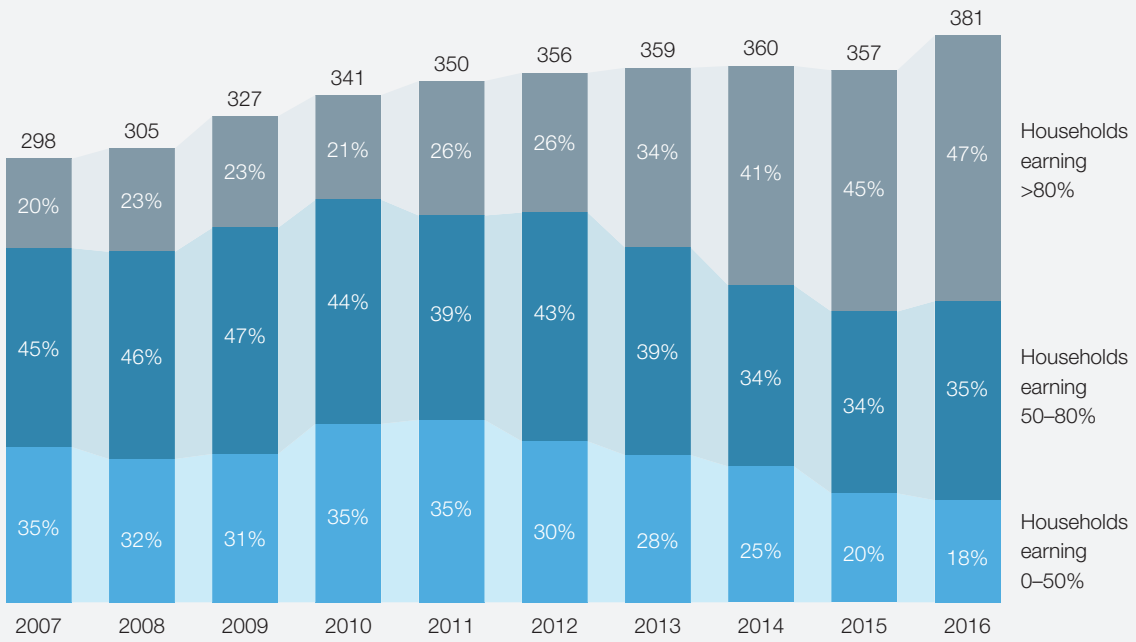
## Disappearing affordable housing

There are many triggers of homelessness—an unexpected expense, the loss of a job, poor health, and domestic violence among them. But the rapid decline in the stock of affordable housing means that when people lose their homes, many of them find it hard to find a suitable alternative. As one emergency-shelter provider said, "Ten years ago, our community had pockets of cheap motels and apartments. When you hit rock bottom, you could still find a roof. Today, there is no safe place for people to fall to. When crisis hits, you fall to the street."

The dwindling availability of affordable housing reflects the dynamics of the construction industry. When economic growth is strong, housing developers tend to build more profitable, expensive homes. As a result, expensive homes have become a larger percentage of the available supply in King County. Since 2011, the proportion of units deemed affordable to households earning 80 percent or more of the area median income (AMI) have more than doubled.[1] At the same time, those affordable for households earning 50 percent or less of the AMI have almost halved (Exhibit 2).

Exhibit 2

**Supply of affordable rental units by area-median-income tier in King County.**




[1] Figures may not sum to 100%, because of rounding.
[2] All estimates shown are midpoints of confidence intervals.

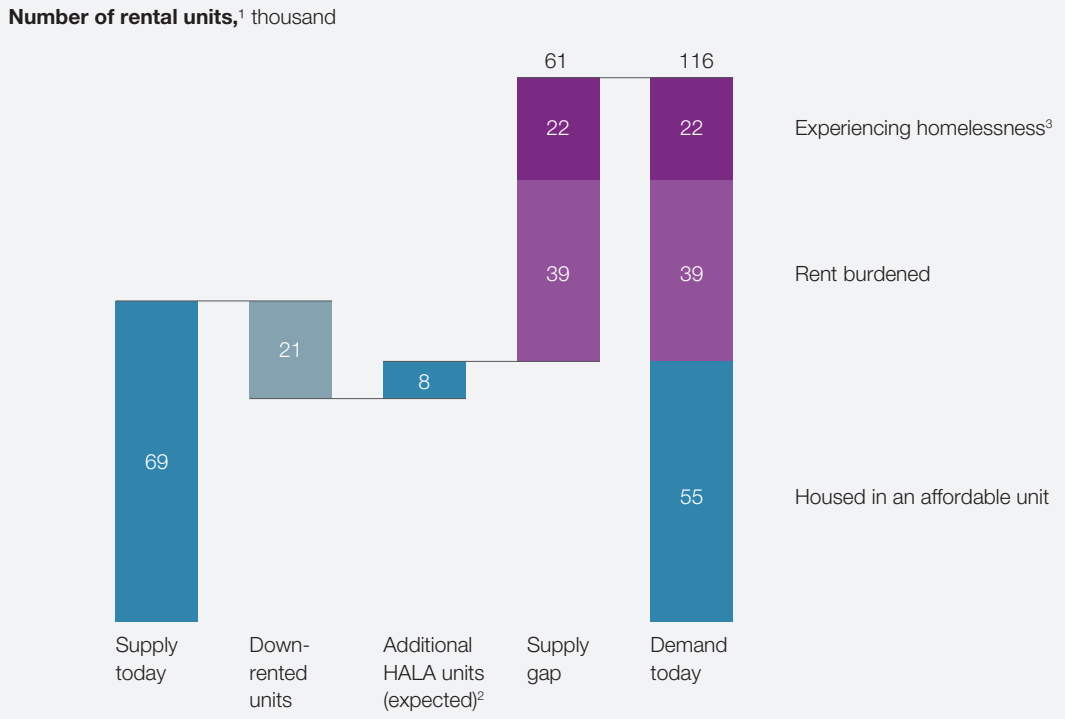
Source: American Community Survey Public Use Microdata Sample

Meanwhile, the homelessness crisis-response system, the providers and shelters led by All Home King County, has dramatically improved its performance and efficiency in recent years. With a 35 percent increase in exits from homelessness over 2016, the system permanently housed 8,100 households in 2017. However, given the shortage of affordable housing options, the performance increase of the crisis-response system is unlikely to continue—there are fewer and fewer units available to house people.

As things stand, homelessness in the county could very well worsen. The shortage of suitable permanent housing for people experiencing homelessness is already acute. Although the county's annual "point in time" count identified more than 11,000 people needing housing on a single night, as many as 22,000 households sought help from the county's homelessness services across the full year of 2017, at a time when only 8,000 permanent homes were available. Yet even these figures mask the true extent of the shortage.

Exhibit 3 illustrates the point. In 2016, 116,000 households in King County had income of less than 50 percent of the AMI, but there were

**Exhibit 3** **Supply of affordable rental units for households earning 50 percent or less of the area median income in King County.**




[1] Figures may not sum to totals listed, because of rounding.
[2] Reported additional Housing Affordability and Livability Agenda (HALA) units data only include fraction of units that would be affordable to a 0–50% area-median-income (AMI) household (eg, those built with Low-Income Housing Tax Credits). Additional affordable units might become available through housing initiatives outside of HALA in greater King County.
[3] Assumes all households experiencing homelessness are part of the 0–50% AMI tier. 2017 Homeless Management Information System entries and exits are full-year estimates based on data from 3 quarters.

Source: HALA gap analysis (6000-9000-5000); HALA report; King County Comprehensive Plan, Housing Appendix

enough affordable homes for only half of them, given that they had to compete for housing with people on higher incomes who "down rent." Even assuming, somewhat unrealistically, that all new affordable housing currently planned by the city of Seattle was made available without delay, we estimate there would be a supply gap of 60,000 homes. That leaves not only 22,000 households already without a home but another 39,000 living in accommodations they struggle to afford, putting them at risk of becoming homeless should their financial circumstances take a turn for the worse.

## How to solve the crisis?

A more efficient homelessness response system could be part of the solution. Progress has already been made: the number of people housed annually in King County has doubled since 2013. Resource optimization is a challenge, though. All Home King County, an independent body, is charged with setting out a strategic plan for the various city, county, and philanthropic homelessness funders in King County and measuring results. But it has no authority over these stakeholders, an issue that makes it difficult to avoid redundant efforts that might lead to waste.

But even the most efficient response system will fail without more money. Spending on homelessness has increased but not enough to keep pace with the scale of the problem. Between 2014 and 2017, the number of households accessing homelessness services grew by an average 11 percent a year. Funding grew by an average 2.4 percent a year.

To gauge the extra resources required, we looked at how much it would cost to house the 22,000 households in need, with immediate effect. Shelters and other support agencies would likely need more funding, but the bulk could go toward expanding the supply of housing through existing programs, such as Rapid Rehousing, Permanent Supportive Housing (PSH), and the Housing Resource Center (HRC). The first two programs subsidize rents to make unaffordable units affordable and have proved particularly effective in King County. The HRC connects households with private-market landlords, providing light-touch support to the former and insurance against rent defaults to the latter. The Young Women's Christian Association (YWCA) housed as many as 500 households a year through this program before it was shuttered in 2017.

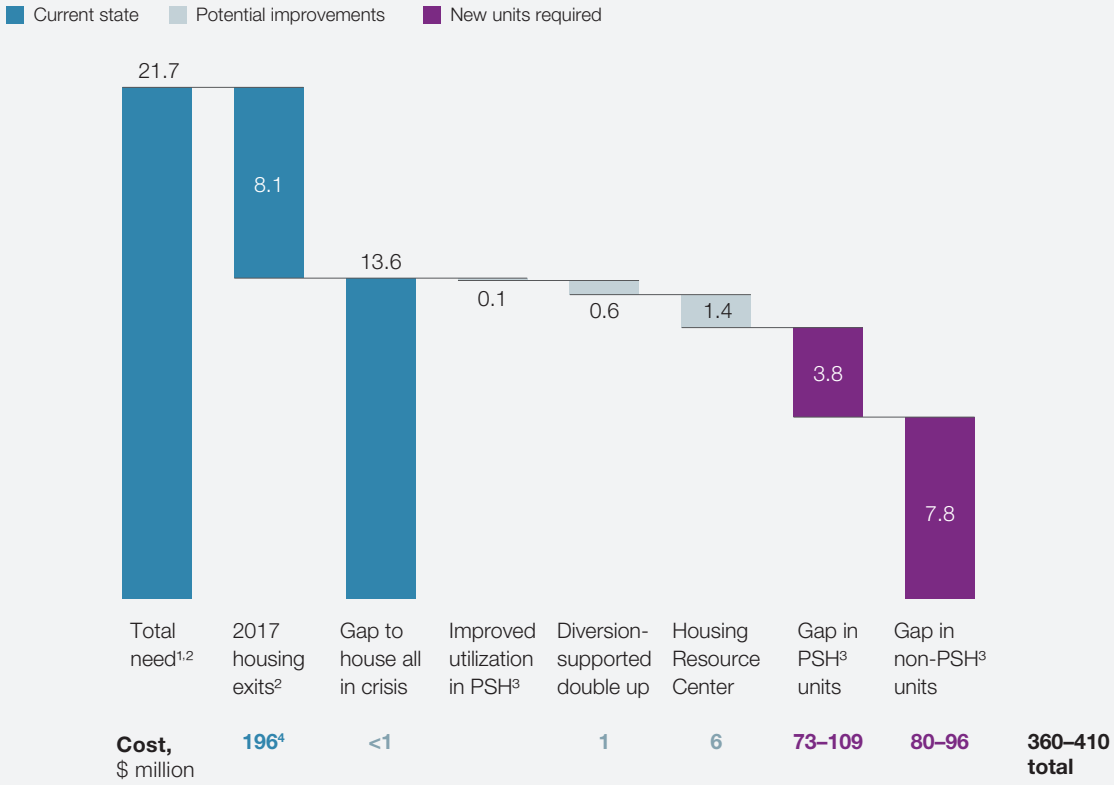
In total, we estimate a budget of $360 million to $410 million would be needed (Exhibit 4). This is about twice what the system invests today. (In 2017, $196 million was spent on the crisis-response system, leading to 8,100 exits from homelessness and the sustained support of some 4,000 PSH residents.) But it is still less than the $1.1 billion that homelessness is estimated to cost the Seattle-area economy as a result of extra policing, lost tourism and business, and the frequent hospitalization of those living on the streets.

It remains, however, that a budget this size addresses the symptoms of homelessness, not its causes. In the longer term, more affordable homes might need to be built. It is easy to list potential supporting tactics, such as new approaches to building, changes to zoning regulations to allow higher-density housing, incentives for builders, and more publicly owned housing. Each obviously comes with a number of economic and political trade-offs that were outside the scope of our analysis.

King County is not alone in facing a homelessness crisis. As economies grow and affordable housing diminishes, other affluent West Coast cities are experiencing the same phenomenon. A night count in Los Angeles last year identified 55,000 people sleeping outside or in shelters. Builders, businesses, philanthropists, government, and housing providers

Exhibit 4 **A combination of strategies might be needed to exit homelessness and move into permanent housing.**

**Housing options and interventions for those exiting crisis,** number of households, thousand




Note: Housing-option costs are inclusive of improvements to crisis-response system (eg, increased funding for diversion) required for exiting 13.6 thousand households from crisis. Figures may not sum to totals listed, because of rounding.

[1] Homeless Management Information System (HMIS) data of 21,700 households experiencing homelessness are best available data, as suggested by King County. We used 15% range of 18,500–21,700 given potential for duplication in HMIS and Coordinated Entry for All systems and those households not meeting King County definition of homelessness (eg, doubled-up households).
[2] 2017 HMIS entries and exits are full-year estimates based on 3 quarters of data.
[3] Permanent Supportive Housing.
[4] $196 million in 2017 funding includes sustained housing and services for >4,000 existing Permanent Supportive Housing residents.

Source: 2017 point-in-time count; All Home King County inflow estimates; All Home King County quarterly dashboard; King County Public Supportive Housing scattered-site data (Jan 2018); McKinsey analysis

in King County and beyond should therefore work together if they are to find a sustainable solution to the homelessness crisis plaguing their cities. ■

[1] The US Department of Housing and Urban Development defines affordable units as requiring no more than 30 percent of household income.

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# How Mexico can become Latin America's digital-government powerhouse

Mexico's digital efforts thus far have been laudable. But higher ambitions could fuel productivity and economic growth and boost the country's GDP by 7 to 15 percent.

Max Cesar, Alberto Chaia, Andre de Oliveira Vaz, Gonzalo Garcia-Muñoz, and Philipp Haugwitz

For decades, Mexican citizens who wanted to get a copy of their birth certificates underwent a long, tedious, and uncertain process. They needed to retrieve their parents' birth certificates, get a document signed by a representative of the Mexican Ministry of Health, and visit a local office of the Civil Registry. When the certificate finally arrived, anywhere between two weeks and two months later, there were sometimes errors in the name, date of birth, and even gender.

Today, however, Mexicans can get a secure, certified, and error-free copy of their birth certificate within minutes by logging onto gob.mx, a one-stop portal that consolidates 34,000 databases from 250 government institutions and 5,400 public services.[1] The site, launched in 2014, is the centerpiece of Mexico's drive to digitize the operations of its federal government—part of a wave of such efforts to improve government productivity taking place across the globe.

## Mexico's digital underspending

In addition to underspending on information and communication technology (ICT), Mexico is spending less on its digital-government unit as compared with digital leaders around the globe. This unit gets 0.003 percent of the total budget, while Canada's digital unit, for example, receives around 0.012 percent (about 15 times more in terms of total expenditure) and Estonia's gets 0.105 percent (about one-and-a-half times more in absolute terms, despite having an economy that is 45 times smaller).[1] However, the responsibility for investment does not rest solely with the government. Mexico's ICT private sector spends 2.0 percent of GDP, versus the 4.7 percent that is the average for our benchmark countries.

[1] *Digital Government in Chile: Strengthening the Institutional and Governance Framework,* Paris, France: OECD Publishing, 2016.

Still in the early stages of its digitization journey, Mexico ranks 55th in McKinsey's analysis of the digital maturity of 151 countries.[2] When compared with countries with similar per capita GDPs, this is a laudable standing. But Mexico has yet to achieve the kind of world-class digital transformation that fuels productivity and economic growth; as of right now, the country is about halfway there. To move forward, the Mexican government's ambitions should be more closely aligned with those of higher-performing countries like Estonia and Malaysia—nations with income levels close to that of Mexico but that "punch above their weight" in regard to digital maturity (Exhibit 1).

We estimate that were Mexico to attain a "good" or "very good" digital-maturity rating, it would boost the country's GDP by 7 to 15 percent (or $115 billion to $240 billion) by 2025. The growth would come from greater productivity and employment in existing sectors, the creation of new digital (or digitally powered) businesses, the expansion of the information-and-communication-technology (ICT) sector, and a successful labor-force transition to these new digital industries (Exhibit 2).[3] As the second-largest economy in Latin America, Mexico also has a unique opportunity to set the standards for what a digitally enabled government looks like in the region.

Implementing these kind of changes is no small task (see sidebar, "Mexico's digital underspending"). First, Mexico needs to invest significant additional resources in ICTs, since its government spending lags behind in relation to the weighted average for our benchmark countries: 1.5 percent of the federal budget goes toward ICT versus the 3.9 percent weighted average.[4] To get up to speed, we estimate that public and private spending on ICT in Mexico would need to increase by at least 5 percent.

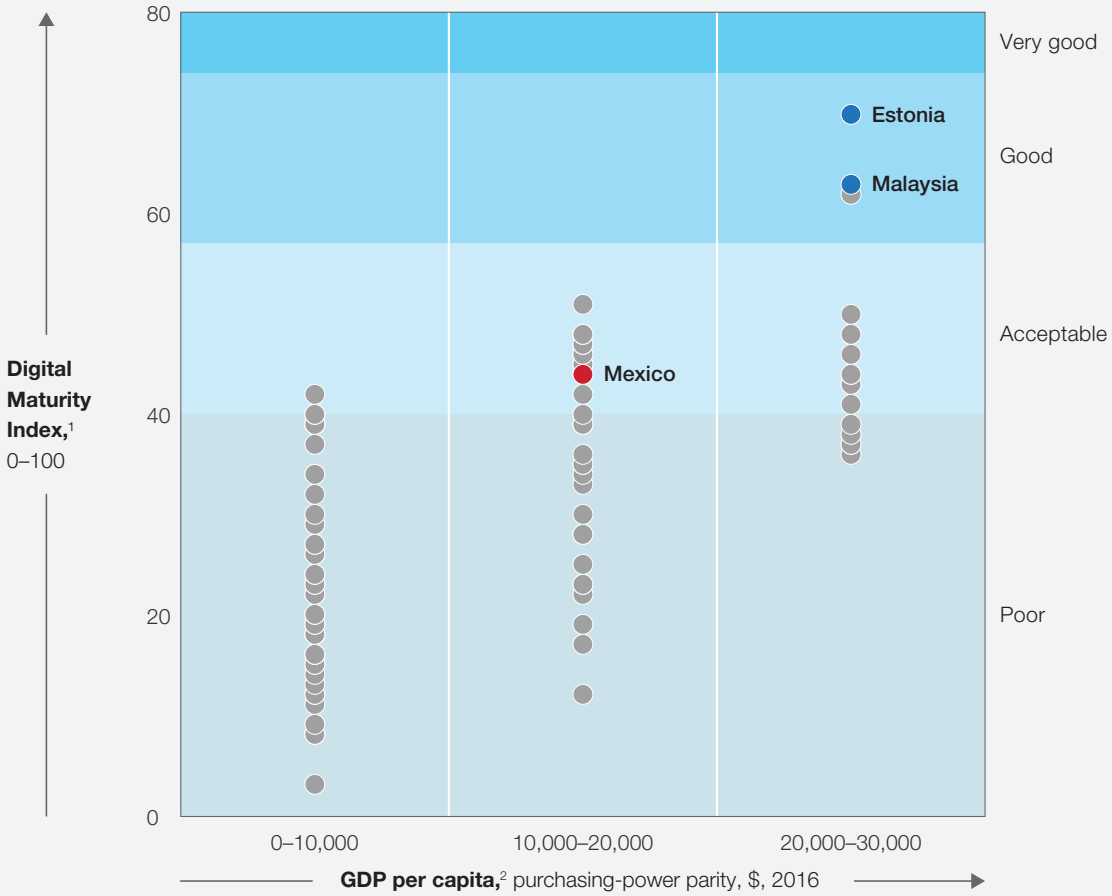
### How Mexico stacks up

In this article, we look at how Mexico is faring along the four critical dimensions used to define digital

Exhibit 1

**Mexico shows a good performance when compared with other countries with similar GDPs.**

**Digital Maturity Index vs GDP per capita,** not exhaustive




[1] Cuts between the different levels of the Digital Maturity Index were determined according to the distribution of the results of all "high income" and "upper middle income" countries (eg, Colombia), according to the World Bank classification. The cut of "very good" corresponds to scores between 1 and 2 standard deviations above the simple average (91>x>74), "good" to scores between the simple average and 1 standard deviation above the simple average (74>x>57), "acceptable" to scores between the simple average and 1 standard deviation below the simple average (57>x>40), and "poor" to scores of 1 standard deviation below the simple average (x<40). The index excluded 2 subdimensions of the framework (informed citizens and use of advanced analytics in government) due to a lack of data to measure them.

[2] GDP per capita is a proxy for total information-and-communication-technology expenditure per capita.

Source: World Bank International Comparison Program Database; McKinsey analysis

maturity (government, foundations, economy, and society) (Exhibit 3) and outline the next steps the government could consider taking to become a leader in the digital future.

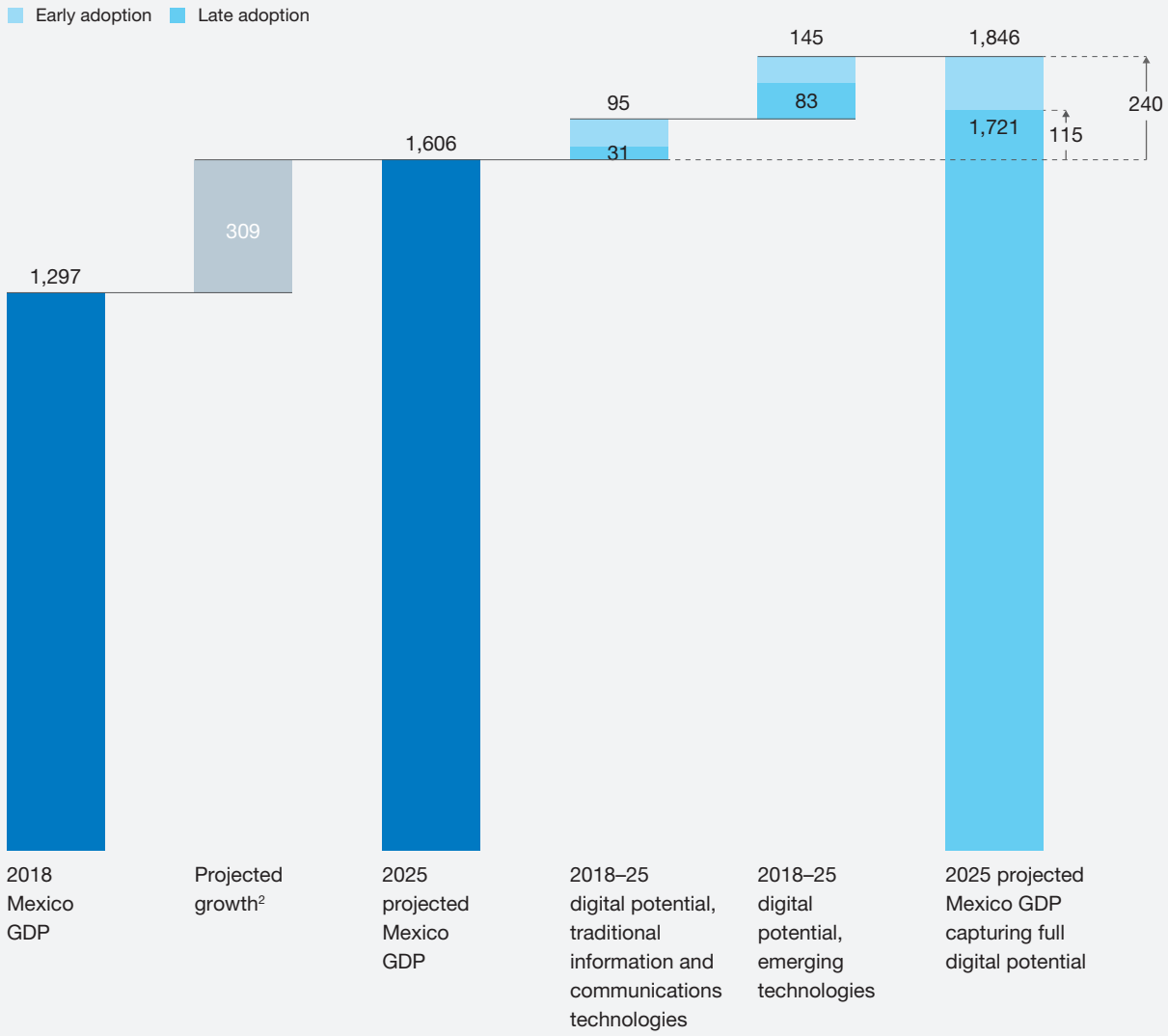
## Digital foundations

For citizens to participate in the services of a digital state, they must first have access to the internet, mobile networks, and other secure data

Exhibit 2

## Getting to a higher level of digitization could boost Mexico's GDP by up to 15 percent.

**Economic potential of digitization[1] for Mexico,** $ billion

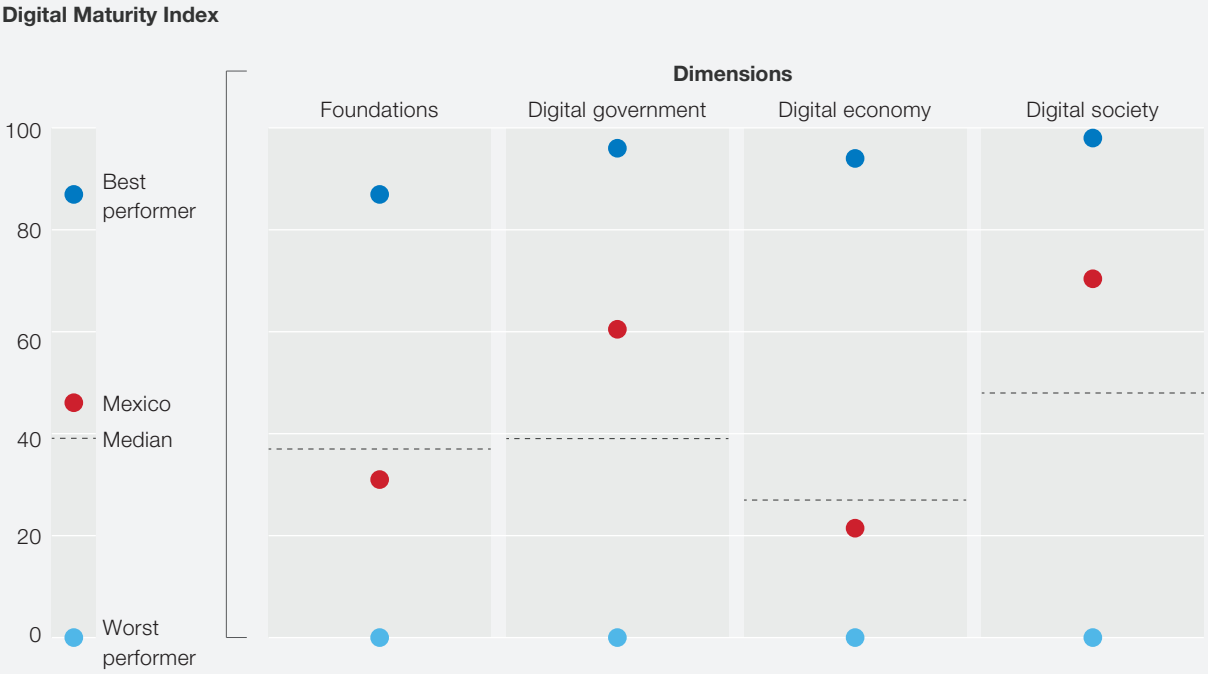



[1] Considers the potential of traditional information and communications technologies, automation technologies, and other emerging technologies.
[2] According to IHS Global Insight forecasts.

Source: IHS Global Insight; INEGI; McKinsey Global Institute analysis

infrastructure. But in 2016, Mexico had just 13 fixed-line broadband subscriptions for every 100 inhabitants, ranking it last among both Latin American and Organisation for Economic Co-operation and Development (OECD) peers.[5] The rate of subscription to mobile broadband is higher, at 61 percent,[6] but this still leaves a sizable portion of the population unconnected and thus spending additional time and money getting to physical centers to access government services. Because of this, Mexico ranks

Exhibit 3 **Our comparison in each of the four critical dimensions shows a below-median performance in Mexico in digital foundations and digital economy.**




Source: McKinsey analysis

93rd (again, last among all OECD countries) in our digital-foundations dimension.

## Digital government

Mexico has made notable progress in its efforts to offer web and mobile access to public services (for those with such access) and to make government more efficient by automating internal processes. In addition to the gob.mx portal, the country has created the role of national digital strategy coordinator within the president's office and has established a national digital strategy. This has resulted in successful initiatives to make government data available to anyone and has made Mexico the leading Latin American country on the Open Data Barometer world ranking.

The country, however, receives low scores from its citizens on their overall satisfaction with the convenience and accessibility of government services. In a recent survey, Mexico had the worst-rated citizen experience (4.4 out of 10) of the group of countries surveyed (Canada, France, Germany, Mexico, the United Kingdom, and the United States) and the largest perception gap between what people experience in the private sector versus the public sector.[7]

In our digital-government subanalysis, Mexico comes in at 39th (out of 151 countries), similar to Chile, Ireland, and Israel.

### Digital economy

Mexico's shaky digital foundations hurt its ability to have mature digital ICT industries. In addition to diminished access to high-speed internet, the reliability of postal services is low, and fewer than 40 percent of Mexicans over the age of 15 have a bank account.[8] As a result, the country is estimated to have poor potential for developing a robust e-commerce sector, which requires efficient delivery of products and digital forms of payment.[9] Moreover, less than 1 percent of Mexico's exported goods and services relate to ICT. McKinsey's digital-economy subindex places Mexico in 92nd place.

### Digital society

Digitization can improve the quality of life for citizens by fostering greater civic participation, providing access to information, and offering new tools for health and education. In recent years, Mexico has accelerated its digital-society efforts and ranks 34th on McKinsey's index. On gob.mx/participa, for instance, citizens participate in public polls and discuss government policies on forums and blogs. At datos.gob.mx/retos, which provides access to Retos Públicos (retos is Spanish for challenges), software entrepreneurs can present solutions to complex public-policy problems, such as the creation of earthquake alerts through push notifications on mobile phones.

## Unlocking the opportunity

To attain the meaningful economic and societal benefits that come from having a digital government, there are three basic initiatives Mexican government leaders could consider putting on top of their priority lists.

### Defining a digital vision and strategy, then linking them to policy priorities

Any successful digital transformation—whether in the private or public sector—depends on having a clear vision and defined goals, and then setting priorities. For governments, this means intimately linking digital to public-policy objectives and viewing it as a lever for achieving them. In India, for example, the government framed its goal of transforming the country into a digitally empowered society and knowledge economy in this way: "digital infrastructure as a utility to every citizen." The UK government talks about developing a world-leading digital economy that works for everyone. To establish a clear link between its digital vision and public value, Mexico's incoming administration may want to consider revisiting the country's 2013 National Digital Strategy and aligning it with Mexico's current and future needs, as well as with the new government's priorities.

This digital vision should be accompanied by a clear set of milestones and metrics that monitor its implementation and impact closely. To ensure success, initiatives that don't yield the expected results should be rigorously evaluated and adjusted or deprioritized in relation to resources. Such a "test and learn" practice is not native to the public sector and will require the use of different budgeting practices, such as top-down budgets that allow a certain amount of flexibility.

### Setting up the correct delivery mechanism

Digital transformations require ways of working that are very different from how governments normally operate. Instead of remaking products, processes, and policies according to what benefits each agency, governments running successful transformations typically orient their efforts around what citizens desire and expect. This requires unprecedented, and at times uncomfortable, levels of coordination among previously siloed entities, such as different government agencies, levels of government, and private-sector stakeholders.

To accelerate and streamline this transformation, Mexico could double down on its efforts to centralize digital initiatives across government agencies by

providing shared platforms and services so that individual units do not need to "reinvent the wheel" and can focus on actual service delivery. Initially, this could involve coordination through a high-level council that meets regularly. Such a council would oversee digital transformation across the government, including deciding a rollout schedule of initiatives and monitoring their progress with a publicly scrutinized set of periodic key performance indicators. It would also identify obstacles and give support to the different government agencies that can address them. If issues cannot be resolved at this level, the council should have the capacity to escalate them.

Ideally, this central group would have a direct role in designing interoperability and data-architecture standards and would perform ongoing reviews of the digital solutions being implemented by different government agencies. It would also ensure there is a consistent user experience (front end) and compatibility with the data and systems of other agencies (back end). Likewise, the group could play a limited role in implementing pilots or new strategic initiatives, either through its own "digital factory"[10] or by managing external vendors.

Eventually, and in a more advanced scenario, the government could form a separate digital delivery unit. The government of Singapore, for example, established the Government Technology Agency (GovTech) as an implementing agency for the Smart Nation and Digital Government Office, both part of the Smart Nation and Digital Government Group under the Prime Minister's Office.[11] The unit usually has a strong sponsor. As in Singapore, it may report to the president or prime minister, or the president or prime minister serves as the chair of periodic progress-review meetings.

## Building digital foundations

Because the gaps in Mexico's digital foundations have ramifications for each of the three other dimensions, we suggest that addressing five essential building blocks could shore up the country's infrastructure.

### Boosting digital accessibility

To increase internet access across Mexico, both national and state-level governments could provide private companies with specific incentives for investing in broadband networks in marginalized communities, such as Chiapas and Oaxaca.[12] In India, for example, the central government helped develop the National Optical Fibre Network (BharatNet) through tax incentives to private providers that make investments in infrastructure. This effort successfully brought broadband services to approximately 115,000 villages, aiming to deliver broadband connectivity to 250,000 villages overall.[13]

### Nurturing the right kind of talent

By 2030, automation technologies are expected to displace nine million workers in Mexico,[14] with the eventual replacement jobs requiring entirely different skills and competencies—most of which the current

In recent years, Mexico has made significant strides to boost the number of college graduates with degrees in science, technology, engineering, and mathematics.

Mexican educational system is not fully prepared to address. In recent years, Mexico has made significant strides to boost the number of college graduates with degrees in science, technology, engineering, and mathematics (STEM). In 2016, 25 percent of graduates were from STEM disciplines, which is equal to the OECD average. But overall, Mexico's education system still lags behind. According to a World Economic Forum survey, the quality of Mexico's mathematics and science education ranks 126th out of 139 countries.[15] And only 17 percent of Mexicans graduate from college (as compared with the OECD average of 37 percent), making the overall talent pool small.[16]

To address this, CONACYT (Mexico's National Council on Science and Technology) could fund a program dedicated to keeping primary and secondary school teachers up to date in STEM knowledge and providing them with new teaching methodologies. Government incentives that encourage students in rural areas to attend college could also be extremely helpful.

For existing workers, the Mexican government could consider spurring the development of reskilling programs that will prepare people who are going to be, or who already have been, displaced by the increasingly automated and service-oriented workplaces of the future. For example, through the SkillsFuture program, the government of Singapore collaborates with private companies to develop low-cost, massive, open, blended (in person and online) course programs to train new entrants to the workforce and reskill existing ones in new-economy skills, like data analytics and innovation.

### Creating smart regulation

The development of new business models often creates a need for new or updated regulation. Mexico recently passed, and is in the process of implementing, a fintech law (Ley para Regular las Instituciones de Tecnología Financiera) that governs cryptocurrency transactions and establishes rules for connectivity via application programming interfaces. It also includes a regulatory "sandbox" in which companies without a banking license can test solutions with real customers.

Since regulation can be daunting for start-ups, structures that help explain rules, offer advice, provide forums for getting questions answered, and generally remove uncertainty for start-ups can go a long way toward fostering their creation. Singapore's FinTech Office could be one such model. The government's monetary authority and its National Research Foundation established a one-stop platform for financial start-ups, providing guidance, significantly reducing bureaucratic complexity, and, in effect, promoting Singapore as a fintech hub.

### Developing interoperability

The traditional, siloed model of every agency procuring and maintaining its own technology is fading away. In its place are shared platforms and services that enable the seamless sharing and aggregation of data across agencies. With agencies powered by an integrated, cloud-based data architecture, citizens can go online to track the progress of complex, multiagency requests, use the same document to navigate multiple online processes, and get their identities verified in one simple step. This model also reduces paperwork, streamlines back-end processes, improves the government's ability to provide targeted support programs, and allows real-time updates of databases. It also affords the kind of 360-degree view of citizens that enables governments to serve people more efficiently and effectively, a result much like what private-sector companies are trying to achieve.

Although Mexico has taken steps toward this kind of system compatibility, a systematic approach to enforcing standards is lacking. All federal agencies, for instance, are required to report standardized transparency data; yet the latest compliance report

of the National Institute of Transparency, Access to Information and Personal Data Protection focused on whether agencies filed their data on time, not on the quality of that data.[17] There is an effort to design norms for systems and data architecture as well as for shared back-office services, but at the time this article was published, the website for the government's interoperability initiative featured several technical documents that were incomplete or entirely empty. Systematically enforcing technology standards and imposing penalties for noncompliance can go a long way toward ensuring a successful IT evolution.

## Addressing data privacy and cybersecurity

Without proper security measures in place, people and systems are vulnerable to cyberattacks.[18] In April 2018, vulnerability in the software that connects Mexican financial institutions to the Interbanking Electronic Payment System resulted in a theft of around $15 million and significant delays in electronic money transfers, including salary payments that were due during time of the attack.

Mexico has established several cybersecurity units (one of them within the Mexican Central Bank as a response to the attack[19]) and defined the physical-, technical-, and administrative-security measures government agencies managing personal data must take. But the government might also consider playing aggressive defense so that it is ready for attacks. This can include hiring actual hackers to test the system and find vulnerabilities that need to be closed, and simulating attacks so that response plans can be implemented in real time. Each government agency could also have a risk profile established so that capabilities can be developed accordingly.

Mexico has made substantial progress in digitizing its government in recent years. Yet before it can advance further and capture the significant economic potential of digital, the country may want to take a step back and fix some of its foundations, most notably internet access, which reflects the inequalities present in Mexican society. Mexico's incoming administration could consider mapping out a clear path for how digital initiatives can help achieve its economic, educational, health-service, and national-security objectives.

No doubt, there will be significant challenges. Going digital will require an investment of financial resources, extensive coordination among the multiple stakeholders and levels of government, and new regulations governing the growing e-commerce and fintech sectors. It most likely would entail participation incentives for the private sector, since governments should not attempt to "go it alone." In the end, both sectors of society stand to reap the value digitization will sow.

[1] Estrategia Digital Nacional: Ventanilla Única Nacional, gob.mx.

[2] To assess the digital maturity of 151 countries, we used 26 publicly available indicators (such as those from the International Telecommunication Union, United Nations, and World Bank) to analyze four key dimensions of a government's digital strategy: digital foundations, government, economy, and society.

[3] To measure the economic value of boosting digital adoption in a country, we estimated the potential impact that achieving an average level of digitization (as measured by the penetration of traditional information and communication technology) would have on the productivity growth of aspirational countries. We also estimated the potential productivity and employment impact of the successful adoption of process-automation technologies, the Internet of Things, and online platforms for better matching of talent supply with job demand.

[4] *Forecast: Enterprise IT spending by vertical industry market, worldwide, 2015–2021,* 2017 edition, Gartner, gartner.com; World Economic Outlook, GDP data, International Monetary Fund, April 2018, imf.org; World Bank public-spending data; *Digital Government in Chile: Strengthening the Institutional and Governance Framework,* Paris, France: OECD Publishing, 2016.

[5] "Fixed-broadband subscriptions," ITU, itu.int.

[6] OECD Data Database, indicator: wireless mobile broadband subscriptions, OECD, September 23, 2018, data.oecd.org.

[7] McKinsey Public Sector Customer Experience Survey. In early 2018, McKinsey surveyed more than 20,000 citizens in six countries (Canada, France, Germany, Mexico, the United Kingdom, and the United States) to find out about their experience as users of public services.

[8] Global Findex Database 2017, World Bank Group, globalfindex.worldbank.org.

[9] *UNCTAD B2C e-commerce index 2017,* United Nations Conference on Trade and Development, October 2017, unctad.org; World Development Indicators Database, World Bank Group, September 2018, databank.worldbank.org; *Postal development report 2018: Benchmarking a critical infrastructure for sustainable development,* Universal Postal Union, April 2018, upu.int.

[10] An in-house digital-development group with its own engineers, designers, and other workers that develops and launches digital solutions. An example is the US Digital Service, a White House unit with more than 200 software engineers, user-experience designers, and product managers who work with federal agencies to launch digital-lighthouse projects. See Matthias Daub, Axel Domeyer, Julia Klier, and Martin Lundqvist, "Digitizing the state: Five tasks for national governments," November 2017, McKinsey.com.

[11] GovTech Singapore, tech.gov.sg.

[12] BIT Database, Instituto Federal de Telecomunicaciones, September 2018, bit.ift.org.mx.

[13] Bharat Broadband Network, bbnl.nic.in.

[14] For the full McKinsey Global Institute report, see "Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages," November 2017, McKinsey.com.

[15] *The Global Information Technology Report 2016,* World Economic Forum, July 2016, weforum.org.

[16] Mexico: Overview of the education system (EAG 2017) Database, indicator: attained a tertiary education degree, 25-64 year-olds (%), Organisation for Economic Co-operation and Development, September 6, 2018, gpseducation.oecd.org.

[17] "Acusan evaluación burocrática del INAI," Nosotrxs, April 11, 2018, nosotrxs.org; InteroperaMX, gob.mx.

[18] David Abusaid, Andrea Cristofori, Rafael Fernández MacGregor, Sergio Waisser, *Perspectiva de ciberseguridad en México,* McKinsey and COMEXI, June 2018, consejomexicano.org.

[19] "Mexico central bank to create cyber security unit after hack," Reuters, May 15, 2018, reuters.com.

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The authors wish to thank Nicolás Grosman and Beltrán Simó for their contributions to this article.

Number 3, November 2018
Designed by Global Editorial Services


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Printed in the United States of America.