THE BEHAVIORAL INSIGHTS TEAM.

What Works Cities — RESOURCE

Behavioral Insights for Cities

October 2016

Behavioral Insights for Cities

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Who we are
THE BEHAVIORAL INSIGHTS TEAM

The Behavioral Insights Team began in the UK as a government unit dedicated to the application of behavioral sciences. Today we work in a variety of countries as a social impact company, partnering with local and federal governments to build a more realistic model of human behavior into the design of public services. We combine an expertise in behavioral science, a data-driven approach, and a pragmatic understanding of government affairs to design and evaluate effective policy changes.

Over the past year, our North American office, based out of New York, has worked with mid-sized cities across the U.S. through Bloomberg Philanthropies' What Works Cities (WWC) initiative. In line with WWC's goal of increasing the use of data and evidence to improve services, inform local decision-making, and engage residents, BIT is working to establish low-cost evaluation and behavioral science as part of the public service toolkit. All of BIT's U.S. work mentioned in this report was generously funded by Bloomberg Philanthropies through WWC.

Our Partners

Chattanooga, TN · Denver, CO · San Jose, CA · Lexington, KY · Louisville, KY · New Orleans, LA

Lowest median income
$40,000

Highest median income
$84,000

Poverty range

12% 28%
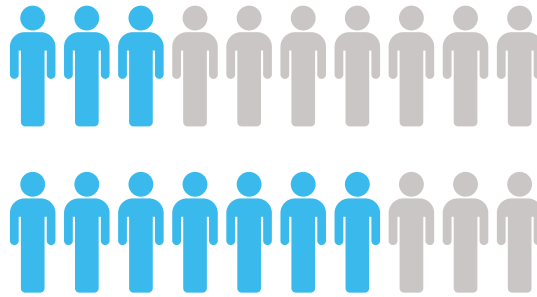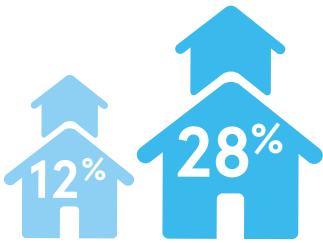
Between **30%** and **70%** minority

Populations between 175,000 and 1,000,000
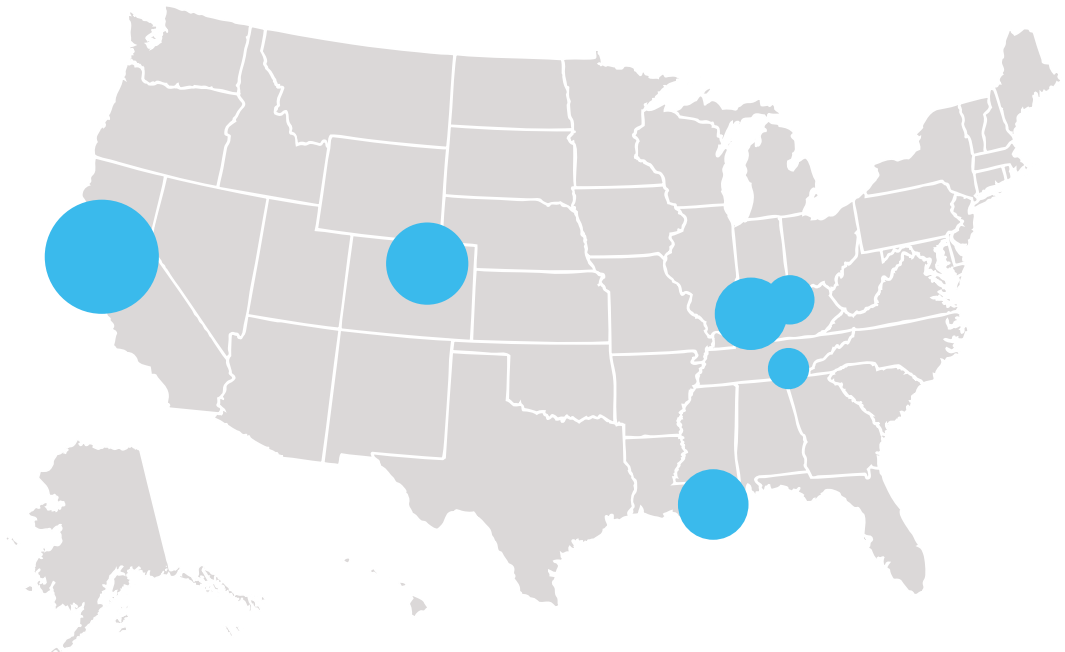
All of BIT's U.S. work mentioned in this report was generously funded by Bloomberg Philanthropies through the What Works Cities initiative.

What Works Cities | Bloomberg Philanthropies

Some Highlights

75%
success rate for interventions tested

Increased number of Denver businesses filing taxes online by **67%**

Raised voluntary code compliance in New Orleans by **16%**

Tripled
the number of police applicants in Chattanooga
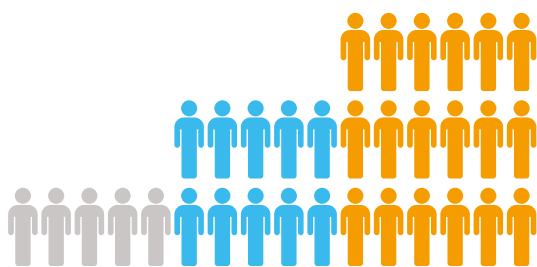
$13–$90
return on investment for letter accompanying unpaid sewer bills in Lexington and Chattanooga

8,289
more large-item pick-ups in San Jose over 3 months*

9,000
more online license-plate renewals in Denver annually*

150
more people signing up for preventative healthcare appointments in New Orleans*

$100,000
in parking ticket fines recouped in Louisville*

*If trial results are scaled

Introduction
BEHAVIORAL SCIENCE IN CITIES

By 2050, two out of every three people on the planet will live in a city.[1] Urbanization and new ideas go hand in hand; by their very nature, cities have long served to create pockets of innovation, changing and improving the way we live our lives in the process. Historically this process was organic and somewhat serendipitous, but modern advances in technology mean that today's city administrations can play a more deliberate role in accelerating and nurturing innovation. The stories hidden in even the most routine city data sets give insights into how real people live their lives, enabling government to do more than simply clean the roads or provide clean water. Armed with these data points on what people do—not what they say they do or what they wish they did —government can create tailored solutions for their residents and discover what works, all without breaking the bank.

Understanding human behavior is critical for improving public services: press pause for a second in any city and you'll see an individual running a red light on a bike, knowing full well the risk isn't worth it; a family whose water is being shut off, not because they can't afford the bills but because they lost track of the letter in a stack of mail; and crowds waiting for hours in government lines when they could use an online service in minutes. These trends aren't limited to residents; government officials might respond most to the loudest person in the city hall meeting, blight inspectors might look to find problems they believe exist rather than seeing the ones that are really there, and police chiefs might overinvest resources in keeping a good statistic strong rather than helping a worse one to improve. These familiar human errors illustrate the curious phenomenon that behavioral science seeks to

Understanding how our environments and context influence our behavior can help city officials improve programs and policies.

explain; our environments and context influence our behavior and can cause us to act in predictable ways that contradict our best interests or intentions. By paying attention to this research on how people actually behave in practice, city officials can identify, understand, and design more effective programs and policies.

This report is a celebration of the city, a review of what we've learned from over twenty-five applied behavioral insights projects in municipalities as different as Chattanooga, San Jose, Louisville,

and Denver, and food for thought on how these insights might be applied to improve government and its services next. The report is structured around three challenges with which we see governments across the country wrestling: improving the take-up of services, building the best government workforce, and making government requests more effective. In each section we explore the behavioral components of the issue, provide examples of what works, and consider other opportunities for progress.

Improving Take-up of Services

Connecting people to services that will improve their lives is part of the core role of government. In the last few decades, cities have invested heavily in improving the services they offer, whether it's expanding the use of 311, opening up data sets to enable civic tech innovation, or developing online access to services, from license-plate renewals to tax filing.

However, these types of innovations alone are not always sufficient to get eligible residents to take up all the services that might be available. This is especially true for the most vulnerable groups. One in four of the working poor is eligible for the Supplemental Nutrition Assistance Progam (SNAP) but isn't receiving benefits;[2] an estimated 1.7 million students are eligible for the Free Application for Federal Student Aid (FAFSA) but do not submit the form;[3] and many cities struggle with empty recreation centers and chronically absent students, particularly from low-income backgrounds.[4] It turns out the old adage doesn't work: build it and, sometimes, they still won't come.

Evidence from behavioral science has shown great promise in explaining and addressing why residents don't always take up the services from which they would benefit. Below we outline the key barriers we have found in our work.

1. Needing a service is not enough

When government budgets are tight, eligibility criteria for services can be complex. Add to this the need for legally robust language, the formatting constraints of old systems, and elaborate application submission processes, and it is unsurprising that accessing government services is often time consuming and confusing. Of course, the benefits of these programs are often large enough that many people manage to jump through the necessary hoops, but a sizeable number of those who could benefit can be discouraged into inaction, no matter how much they could use the assistance. Just making services easier to access can make a real difference.

The 2016 FAFSA, for example, logs in at more than 100 questions and includes four pages of notes and instructions, much of which is dense legalese.[5] In an experiment with the tax preparation company H&R Block, researchers found that using tax information to auto-fill as much of the FAFSA form as possible, along with giving applicants about 10 minutes of assistance on remaining questions, increased college enrollment rates for high-school seniors and recent high-school graduates by 24%.[6] In our work to improve tax collection rates with the British revenue and customs agency, HMRC, we found that even making the process of responding marginally easier—by directing people straight to a form rather than to a webpage that links to the form—increased response rates by nearly 22%.[7] By breaking down processes

into **micro-behaviors**—the smallest steps that add up to make or break overall success—we can often strip out unnecessary 'friction,' increasing take-up of services as a result.

Eliminating a click increased response rates by nearly 22%

Inevitably, however, even the simplest processes require some effort on the part of applicants. Studies on implementation intentions show that asking people to write down a specific plan of how they will accomplish their goal and how they will overcome likely obstacles can make follow-through significantly more likely.[8] We worked with the Denver, CO, Department of Motor Vehicles (DMV) to see whether this insight could help shift some of their in-person license-plate renewals online. With over 400,000 such renewals in 2015, this could save both the city and its residents time and money. By providing drivers with a postcard that helped them plan when they would renew their license, we increased online license plate renewals by approximately 7-8%, a number that, if scaled, would represent a shift of 9,000 renewals to the online system each year. This sort of planning assistance can be an extremely low-cost way of helping people overcome the perceived hassle factor of changing the way they do things when taking up services.

Sending a postcard could add 9,000 online license renewals

Front of Denver DMV postcard

Breaking processes down into **subgoals**[9] can boost tenacity.

People are more likely to follow through on good intentions if they set specific, actionable plans, or **implementation intentions**.[11,12]

DENVER
THE MILE HIGH CITY

Skip the Trip! Fill out this reminder and post it on your fridge

Will you renew online?　□ Yes　□ No

Action	Date
I will have my **insurance** up to date by	___ / ___ / ___
I will have my **emissions** up to date by	___ / ___ / ___
I will renew on **bit.do/DMVonline**	___ / ___ / ___

For more information, please visit www.denvergov.org/dmv

Helping people **visualize**[10] the end goal can increase their chances of getting there.
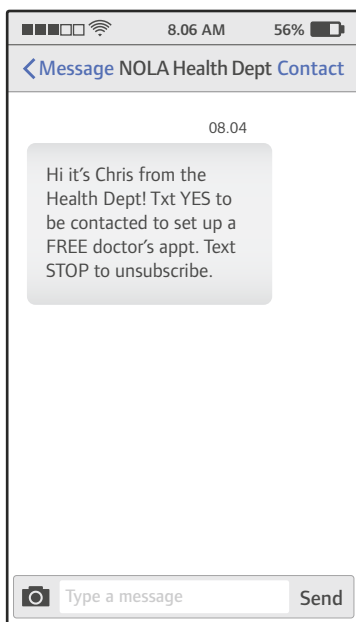
Back of Denver DMV postcard

Because people fixate on the numbers or dates shown to them, giving Denver drivers an early **anchor**[13]—the month their license expires rather than the last date to renew—may help them renew before the final deadline.

Dear neighbor,

Your license plate 111-AAA expires in **March 2016**. Renew online to save time.

We designed this reminder to help you plan this year's renewal, hope you find it useful!

<NAME>
<ADDRESS>

🖱 **PAY ONLINE**

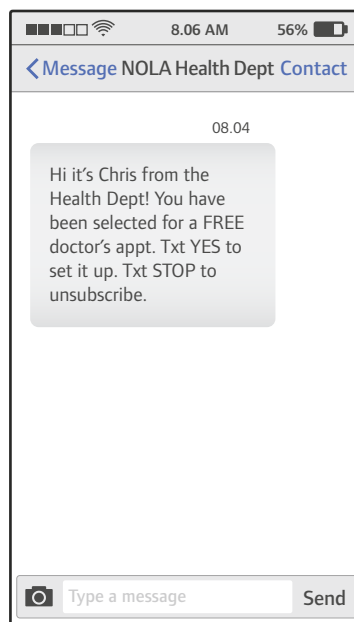Late fees apply after your one-month grace period. You can renew online through April 30, 2016.
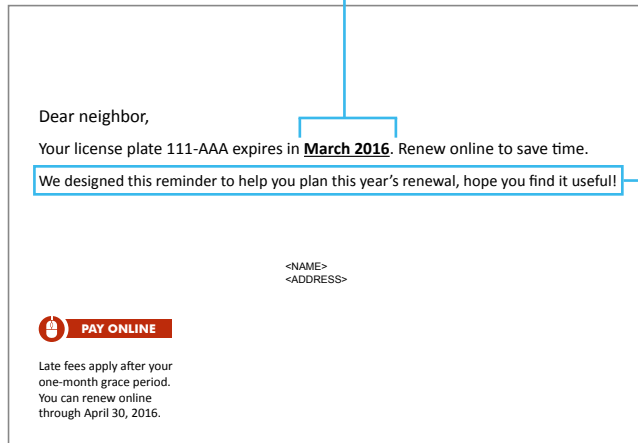
Emphasizing the fact that the city was doing something for the license plate owner might elicit **reciprocity**,[14,15] encouraging drivers to renew.

As this example shows, being able to afford and physically access a service are just two factors in whether people use it. When promoting take-up, we also need to consider the psychological dimensions of decision making. For example, it turns out what actually motivates us to take action might not always be intuitive. In New Orleans, LA, we worked with the Health Department and a network of public-health organizations to test how we could encourage low-income ind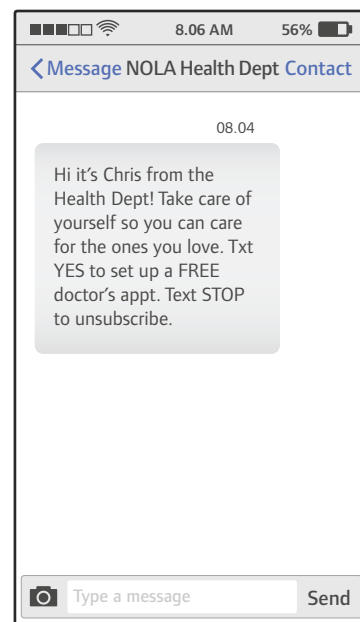ividuals who hadn't seen a primary care physician in over two years to take up a free health service. Using an existing text message service, we tested different ways of inviting people to take up the appointment, an approach that cost no more than the existing budget. Recipients were randomly assigned to one of three messages: an information only text; a message that invited recipients to 'take care of yourself so you can care for the ones you love'; and a message that tells recipients 'you have been selected,' building on research that making people feel unique can prompt action.[16,17,18]

|		
▪▪▪□□ 📶 8.06 AM 56% 🔋	▪▪▪□□ 📶 8.06 AM 56% 🔋	▪▪▪□□ 📶 8.06 AM 56% 🔋
‹ Message NOLA Health Dept Contact	‹ Message NOLA Health Dept Contact	‹ Message NOLA Health Dept Contact
08.04	08.04	08.04
Hi it's Chris from the Health Dept! Txt YES to be contacted to set up a FREE doctor's appt. Text STOP to unsubscribe.	Hi it's Chris from the Health Dept! You have been selected for a FREE doctor's appt. Txt YES to set it up. Txt STOP to unsubscribe.	Hi it's Chris from the Health Dept! Take care of yourself so you can care for the ones you love. Txt YES to set up a FREE doctor's appt. Text STOP to unsubscribe.
📷 Type a message Send	📷 Type a message Send	📷 Type a message Send
Simple	Unique	Prosocial

What Works Cities

This message was 40% more effective at getting people to agree to schedule an appointment than the basic information message. Most interestingly, asking people to 'take care of yourself so you can take care of the ones you love,' an intuitively appealing message, backfired, performing worse than the information alone.

Telling people they had been 'selected' increased the number of people agreeing to schedule a doctor's appointment by **40%**

Effect of text messages on preventative healthcare take up

Percent responding "yes" to schedule an appointment

	Simple	Unique	Prosocial
	1.0%	1.4% *	0.7% *
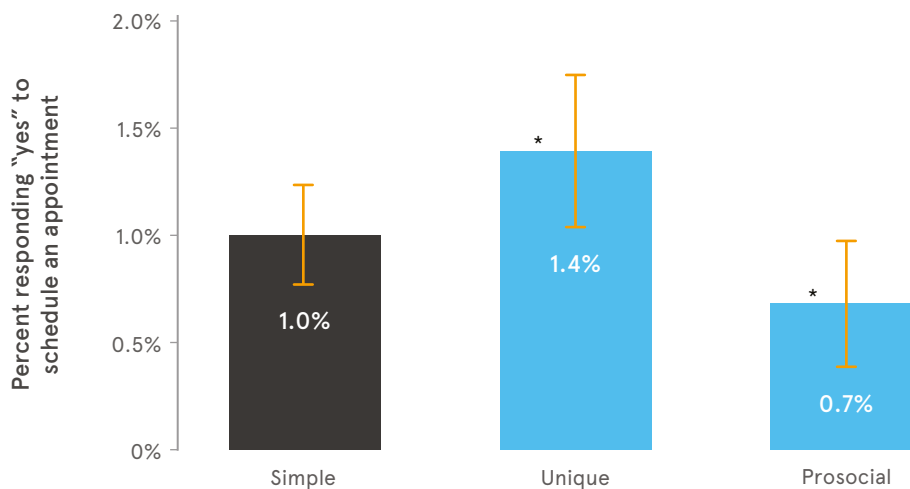
(N=21,442)
***p<.001, **p<.01, *p<.05, +p<.1

A similar method worked to increase the use of a free large-item collection service in San Jose, CA, where improper disposal of large household items is increasingly becoming a problem. A postcard that told people they had been selected for the service increased collections by 146%, or, if scaled, 8,289 total household collections in three months.

Sending a postcard could add **8,289** household collections

Another way of catching people's attention can be to leverage people's natural **loss aversion**: studies suggest that we are distressed by losses more than we are pleased by equivalent gains.[19] In other words, we value not losing something more than we value gaining the same thing. In Denver, we drew on this insight to encourage businesses to register for an online tax payment system rather than using paper filing. The impact of the existing reminder—a letter that encouraged businesses to 'Go Green!'— had plateaued, despite being in line with

the stated environmental values of many in the area. By reframing the reminder letter to emphasize the time lost when not filing online, we were able to increase the number of Denver businesses that registered by 76% and the number that finally filed their taxes online by 42%. As online filings are more efficient, this change saved the city and taxpayers time and money.

Reframing a letter increased business registrations for an online tax portal by **76%**

When the service is targeted at the most vulnerable, the various barriers to access may lead to lower take-up. Recent research suggests that being under resourced—whether that resource is time, money, or something else—leads people to engage more with current, pressing demands, which in turn leaves less attention for future or less salient ones.[20] This concept—known as **scarcity**—is more than a theoretical problem. Take for example the head of a low-income household; if deciding how to balance various expenses to get an affordable dinner on the table takes up a lot of mental energy, that leaves less space or time to worry about things that are important but less urgent—applying for SNAP benefits that might take off some of the pressure in the future, for example.[21] This phenomenon was illustrated by researchers who found that focusing poor participants on large financial concerns decreased their ability to solve problems in new contexts and pursue goals; richer participants, on the other hand, were unaffected. The same researchers found that sugarcane farmers in India performed worse on the same tests of mental ability before the harvest, when they were poorer, than after the harvest, when they were richer.[22] If cities better understand the role of these seemingly irrelevant factors in decision making, they can design services in ways that help all residents, even the most needy, take up services.

Reframing a letter increased online tax filing by **42%**

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2. It won't happen if the Joneses aren't doing it

The Earned Income Tax Credit (EITC), a tax refund or credit for workers with low to moderate incomes, is a perfect storm of important, complicated, and dull. Because of this, it is perhaps surprising that people often learn about the EITC's benefit schedule from acquaintances rather than through official government channels.[23] This is not due to a lack of communication on the part of government. Rather, it highlights a fundamental fact about people's behavior: humans are sociable beings that take their cues on how to act from others. In a world where our attention is in high demand, we can often use the behavior of others as evidence that the action must be safe and appropriate. This extends beyond the immediate influence of our nearest and dearest; cultural or **social norms** can also act as powerful regulatory forces in getting people to play by the rules, and simply making people aware that they are going against the norm can be enough to gain compliance.
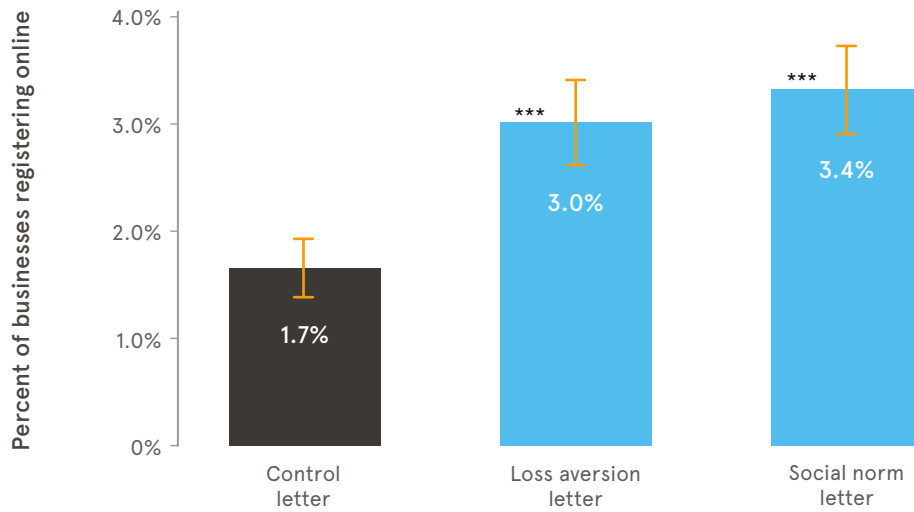
A letter telling businesses that the majority of their peers have an online account was **twice as effective** at boosting online tax filings than telling them to 'Go Green'

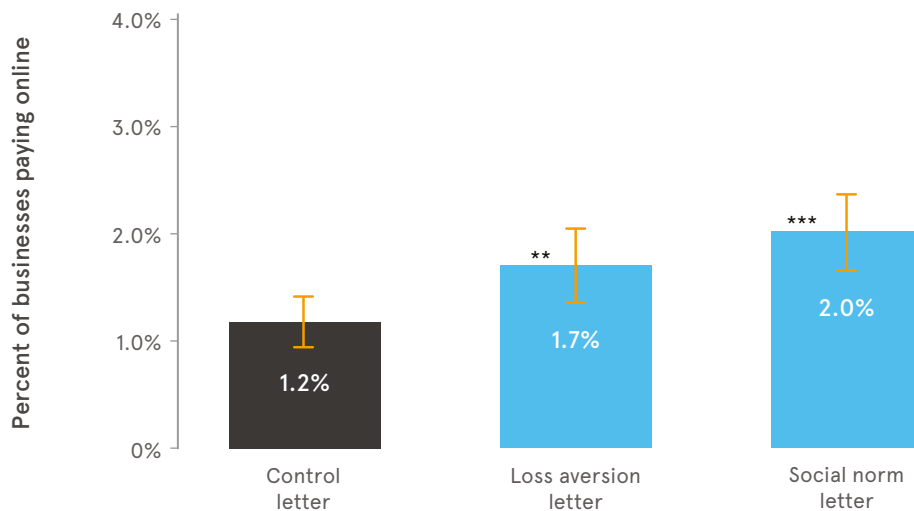Reframing a letter increased online tax filing by **67%**

This insight is especially powerful for policymakers. Government often holds data that show exactly what fraction of people are using a service, and, when that fraction is higher than expected, simply sharing that information can sometimes be enough to change behavior.[24,25] In the UK, just telling those with overdue tax debt a simple truth—that the majority of people like them paid their taxes on time—significantly increased the number of people who subsequently return their tax forms.[26] In our work to increase usage of Denver's business tax portal, aside from loss aversion, we also tested a letter that, with a few other changes, informed businesses that the majority of their peers had an online account. This letter was twice as effective as the control (the 'Go Green!' message) at getting businesses to register and 67% more effective at getting them to pay online.

Effect of letter on online tax portal use

Percent of businesses registering online

Control letter	Loss aversion letter	Social norm letter
1.7%	3.0% ***	3.4% ***

(N=32,866)
***p<.001, **p<.01, *p<.05, +p<.1

Percent of businesses paying online

Control letter	Loss aversion letter	Social norm letter
1.2%	1.7% **	2.0% ***

(N=32,866)
***p<.001, **p<.01, *p<.05, +p<.1

Of course, whether you identify with a group will affect how much you want to act like them. In some cases, the **messenger** matters as much as the message itself, and it can take a group or a social connection for people to really

Adding a picture increased signups for charitable giving by over **220%**

absorb information they might have been exposed to repeatedly over a long period. Research shows,[27] for example, that African American veterans with diabetes achieved significantly healthier blood-sugar levels when assigned a peer mentor than those that received medical care as usual. More surprising still, having a peer mentor was also more effective than a monetary incentive. Recruiting peer mentors may be costly, but sometimes even changing who a message is sent from or who it is endorsed by seems effective. In the UK, BIT ran a trial to increase payroll giving among government employees. Simply adding a picture of a fellow employee who has already signed up increased the number of people who signed up by over 220%.[28]

Targeting Specific Behaviors

In San Jose, BIT worked with the city to send an email to half of all city employees emphasizing the benefits of a subsidized transport scheme. In analyzing the data, we found that the email led to 11 times more people registering for a pass for the first time than the general information employees were exposed to. As anticipated, though, we found in a two-month follow-up that there was no significant difference in ridership between the people who received and did not receive the email.

Understanding the bounds of this specific tweak, which helped people register but did not necessarily increase their ridership, allows San Jose to make changes in that next step of the process to eventually increase ridership as well.

Sending an email increased registrations for a public transportation pass by **11x**

Using networks increased number of people donating by **three times**

Similarly, in a trial attempting to increase the proportion of people who gave a day's salary at a large investment bank, we found that getting people with stronger connections to make a one-off request to a target group on your behalf can be powerful. In this case, an email to members of the middle-management who had been generous in the past that reminded them of their impact and asked them to reach out to friends and colleagues and tell them what their donation could do increased the number of people who donated by three times compared to an email without the line encouraging them to reach out to their peers.

A packet of sweets increased the number of investment bankers donating a day's salary to charity by **120%**

Social connections may be effective in moving behavior through other means as well. One area that behavioral scientists study extensively is reciprocity; the predisposition we have to repay favors and, most interestingly, in a way that often far exceeds the initial deed. Let's look at this in practice: when trying to encourage investment bankers to donate to charity, BIT tested different messages and approaches. It turns out giving investment bankers a small packet of sweets increased the proportion who gave a day's salary—thousands of dollars, in some cases—to charity by 120%.[29] This works with less tangible 'favors' too; when we sent job seekers a text message invitation to a mass recruitment event, including a personalized message from their job coach that said "I've booked you a place, good luck," we more than doubled attendance rates.[30] Whether with job recruitment events, income assistance programs, utility bill subsidies, or other city programs, understanding how people are driven by their social connections can help cities encourage residents to use the resources they need most.

A text **more than doubled** attendance rates of job seekers at interviews

Building the Best Government Workforce

Behavioral insights are a leveler, that is they apply to all of us. While much of the first wave of applied behavioral science in cities was focused on how governments could nudge or encourage residents to act differently, the next wave asks: how can government use these insights to be better? After all, government—and any other organization, for that matter—is a collection of people who will be subject to the same behavioral biases as the citizens they serve.[31,32]

Even judges, with expert training in impartiality, make rulings that have been shown to be affected by food breaks.[33] In the UK, our analysis of social-worker decisions regarding at-risk children suggests a similar trend, with weekend referrals being less likely to progress through the system than those made on a weekday.[34] Understanding how to improve the government workforce using behavioral science can not only improve the efficiency and effectiveness of government, but also have knock-on effects on how others view and trust the very people who are called to serve them. We discuss key areas of our work below.

1. How we hire determines who we hire

Cities across the country are rethinking how they recruit to ensure that the government workforce represents the people they are called to serve and that smart, skilled individuals are attracted to jobs in city government. In many ways, recruitment and selection are processes rife with potential for bias, both from the side of the recruiter and from the side of the applicant. We know, for example, that when people have to make many decisions in a row, or when there are many pressures on their attention, they tend to make more intuitive or superficial judgements.[35] This **cognitive depletion** is applicable to all of us. Yet, behavioral science has shown that even small changes to how we recruit and select candidates can reduce cognitive depletion and therefore lead to better hiring decisions.

Changing the message to emphasize different career benefits **tripled** the number of applicants to the police force

Behavioral science has a role to play even before the recruitment process begins. As part of our What Works Cities engagement in the city of Chattanooga, TN, we set about working with the Police Department to attract new applicants from a more diverse range of backgrounds to the police force. Together we tested which message on job advertisements was most effective at increasing applications and whether different messages appealed to different groups. While much of government recruitment emphasizes serving the community, these messages might exclusively attract individuals who were already planning on applying because the advertisements provide no information beyond what people already expect of government jobs. For this reason, messages that make another dimension of the job more salient can attract a broader applicant pool and a more diverse group of people. Through sending postcards to households across the city, we were able to test the effect of different messages on
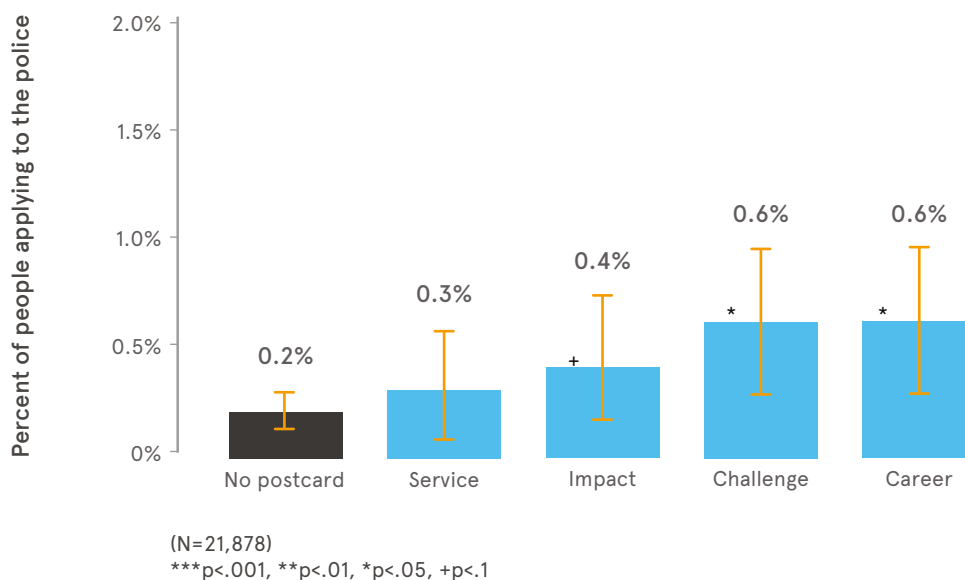
application rates. Messages that focused on the challenge of the job and the career benefits tripled the number of applicants, while messages that focused on the opportunity to serve or make an impact on the community showed no significant difference from not sending a postcard at all. Interestingly, the messages highlighting the challenge or the career benefits were also particularly effective in getting people of color and women to apply. While this is one particular example, cities use a variety of means and messages to recruit their workforces. Every communication and every stage in the process represents an opportunity to widen the applicant pool, from contacting interested people to posting on websites like PoliceApp to running recruiting events.

The changed message was particularly effective in getting people of color & women to apply

Effect of changing messaging on police recruitment

(N=21,878)
***p<.001, **p<.01, *p<.05, +p<.1

Effect of changing messaging on police recruitment for people of color

(N=7,678)
***p<.001, **p<.01, *p<.05, +p<.1

Postcard 1: Service

Front

Are you ready to serve?

Apply to be a police officer today!

Paid for and approved by the City of Chattanooga

Back

Hi <First_Name>,

We're hiring new police recruits and I hope you consider applying.

I love being part of the police because I feel I can really make a difference in Chattanooga.

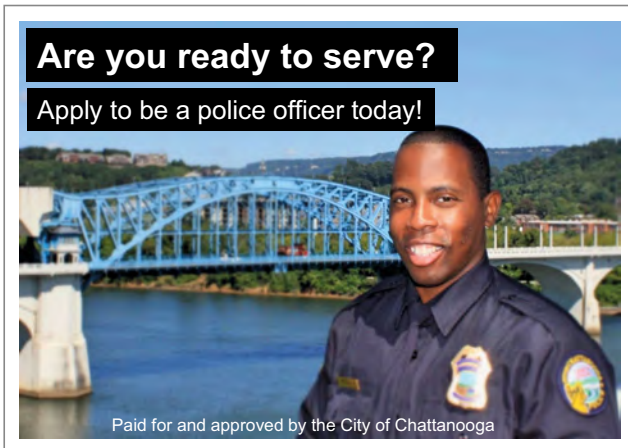**If you're the kind of person who is ready to serve, you're just the kind of person we're looking for.**

To apply, just go to bit.do/CPDserve and submit before March 28, 2016.

Good luck!

Worlie Johnson

Police Officer, Chattanooga Police Department

<Full_Name>
<Owner_Address>

Postcard 2: Impact

What would it mean to you?

Apply to be a police officer today!

Paid for and approved by the City of Chattanooga

Hi <First_Name>,

We're hiring new police recruits and I hope you consider applying.

I love being part of the police because I feel I can really make a difference in Chattanooga.

Just think what it would mean to you and your community if you became a police officer.

To apply, just go to bit.do/CPDdifference and submit before March 28, 2016.

Good luck!

Worlie Johnson

Police Officer, Chattanooga Police Department

<Full_Name>
<Owner_Address>

Postcard 3: Challenge

Are you up for the challenge?

Apply to be a police officer today!

Paid for and approved by the City of Chattanooga

Hi <First_Name>,

We're hiring new police recruits and I hope you consider applying.

I love being part of the police because you never know what to expect: it's challenging but rewarding work!

If you're the kind of person who thrives in challenging environments, you're just the kind of person we're **looking for.**

To apply, go to bit.do/CPDBeChallenged and submit before March 28, 2016.

Good luck!

Worlie Johnson

Police Officer, Chattanooga Police Department

<Full_Name>
<Owner_Address>

What Works Cities RESOURCE

Looking for a long-term career?

Apply to be a police officer today!

Paid for and approved by the City of Chattanooga

Hi <First_Name>,

We're hiring new police recruits and I hope you consider applying.

I love being part of the police because I'm constantly developing my skills: this isn't just a job, it's a career.

If you're looking for a long-term career, you're just the kind of person we're looking for.

To apply, just go to bit.do/CPDcareer and submit before March 28, 2016.

Good luck!

Worlie Johnson

Police Officer, Chattanooga Police Department

<Full_Name>
<Owner_Address>

A commitment device helped inactive police force applicants complete their applications
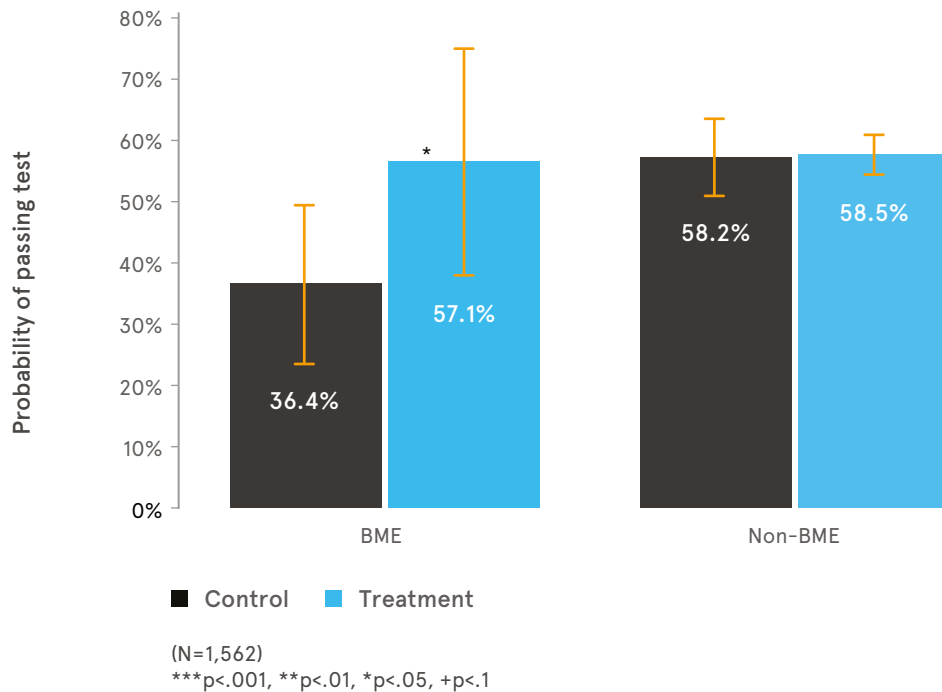
Once candidates turn in an application, the next step is helping them complete their applications. We worked on this issue in San Jose, where a substantial number of applicants to the police department were dropping out of the recruitment process despite being eligible to progress. To avoid this attrition of talent, the city was keen to 'reactivate' applications and get promising candidates to submit their passing test scores. To do this, we designed an email to inactive applicants from previous rounds. The email contained a form that made use of a **commitment device** by asking applicants to identify a self-imposed deadline for taking their tests and/or submitting scores. Applicants received an automatic confirmation email that contained the deadline they set after submitting their form and again on the date of their deadline. While this project did not include a pure control group, 125 applicants submitted passing scores during our trial and a pre-post analysis suggests that our changes were impactful.

Getting people to apply is only the first step in government recruitment and selection. Seemingly unimportant details in the assessment process may impact who succeeds. Multiple experiments have shown that when an individual fears that they may confirm a negative stereotype about them or their group, they may underperform on tests.[36] This phenomenon, known as **stereotype threat** is exemplified in a study that found Asian-American school girls performed worse on a mathematics test when they were reminded they were female, but actually did better when they were reminded of the Asian part of their identity.[37] When we worked on police recruitment with the Avon and Somerset Constabulary in the UK, we found that black, minority, and ethnic (BME) candidates were more likely to drop out of the process when they were asked to take a test to assess their situational judgement. This made us wonder whether stereotype threat was at play, so we reworded the reminder email to applicants before the test to make it more welcoming and added a line asking candidates to consider what becoming a police officer would mean to them and their community. This intervention increased the probability that these candidates passed

the test by over 50%, effectively closing the gap between them and their non-minority peers.[38] For cities, simply being intentional in the design of each touchpoint with a prospective applicant can help get a broader range of people in the door.

Effect of rewording an email on passing police recruitment test

Probability of passing test

80%
70%
60%
50%
40%
30%
20%
10%
0%

*

36.4%
57.1%
58.2%
58.5%

BME   Non-BME

■ Control   ■ Treatment

(N=1,562)
***p<.001, **p<.01, *p<.05, +p<.1

Small tweaks alone can be insufficient when the problem is with the overall process. In a bid to build better recruitment overall, BIT has recently developed a hiring tool, Applied, that uses what we know from the behavioral literature to reduce bias in the recruitment process.

2. Feedback can often be as powerful a motivator as money

Sending a letter decreased the antibiotic prescription rate by **3.3%**

Maintaining motivation when your pay and promotion schedules are difficult to negotiate isn't always easy. There are various ways to structure bonuses or performance-pay packages that incorporate behavioral science—evoking loss aversion by awarding teacher bonuses at the start of the year on the condition that they must be paid back for underperformance, for example[39]—but for many cities these options are not on the table. In the past, we have found that providing workers with feedback can improve performance dramatically and is a cost-effective way to support the government workforce. For example, when trying to reduce rates of antibiotic overprescription in the UK, we made use of social norms by sending letters telling top-prescribing physicians that 80% of other doctors in their region prescribe less, a true statement. This led to a 3.3% decrease in the prescription rate, representing 73,406 fewer prescriptions overall and costing just £4,335.[40]

Feedback can come in many forms, and in a public sector context there may not always be a clear productivity number to point people towards. Studies show that giving people feedback on the impact of their work can also be particularly motivating. For example, just a 10-minute session including a conversation with a beneficiary of a scholarship significantly increased fundraisers' productivity and performance, leading them to spend 142% more time on the phone and raise 171% more money than their peers.[41] Similarly, just placing a photo next to the x-ray of a patient improved radiologists' performance dramatically.[42]

This resulted in **73,406** fewer prescriptions overall

Making Government Requests More Effective

The role of a city government is not just to innovate and support; it is also to make sure residents are abiding by the rules or the law.

Getting someone to follow traffic signals, fix up their home, or, quite simply, not steal can have a significant impact on what living in a city feels like, yet clamping down on residents with a heavier hand is often ineffective relative to the cost of doing so. When residents don't respond to low-touch government communications, public institutions can end up spending vast amounts of additional resources following up. Similarly, governments often seek alternatives to regulation that allow them to impact vital issues, such as conserving water during droughts, while staying flexible and preserving autonomy for their residents. In both of these cases, behavioral science can help support citizens in complying and find creative ways to ensure that the law is followed. We expand on these insights below.

1. Match the response to the motivation

Ensuring citizens follow the rules requires understanding that different people have different motivations for not following them in the first place. When thousands of people are delinquent on a utility payment or haven't paid their parking fines, the first step is to understand why. Some people may not pay because they think no one else does, others legitimately can't afford their bills, some don't even know they are in debt, and still others simply forgot to pay because the bill got lost in a pile of to-dos. Government data show that there are significant chunks of the population who are not following the rules even though they have the resources to do so. Using zero—or minimal—cost tweaks, these people can be nudged into compliance, freeing up time and resources for the more serious cases.

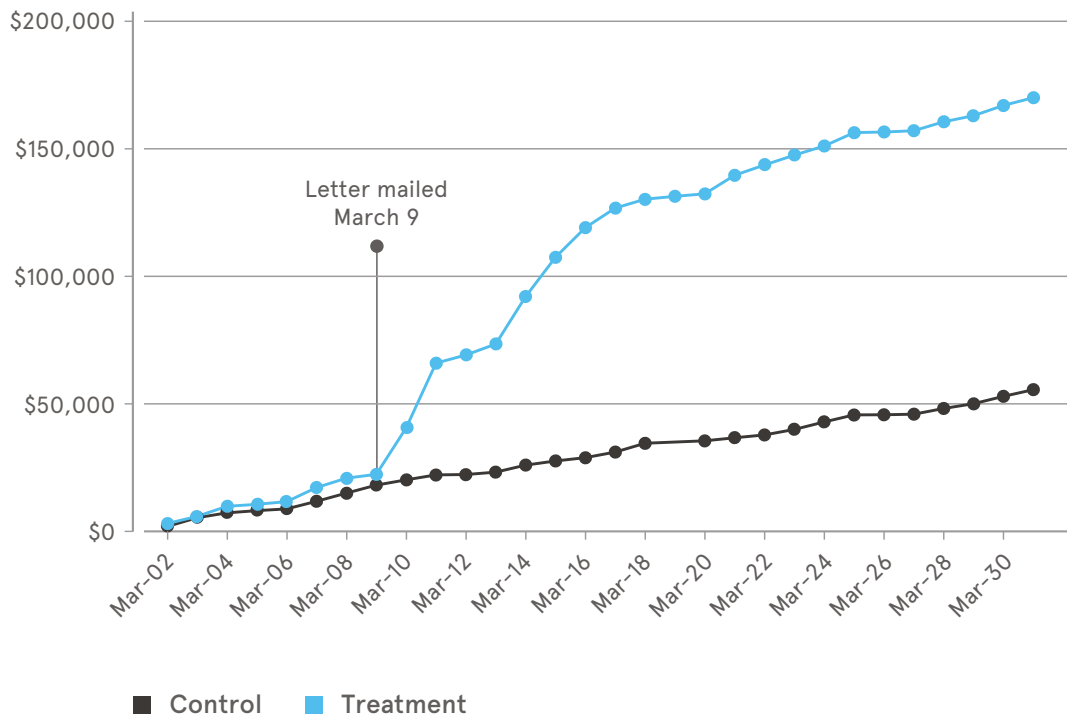ROI of **$13.33** on Chattanooga sewer bill letters

When working with Chattanooga, TN and Lexington, KY, we made use of a variety of different behavioral insights to tweak communications between the cities and their residents. As opposed to targeting major obstacles, such as the size of the bills or the timing of the due date, we focused on the micro-behaviors involved in the existing payment process, such as getting people to open the letters, helping them to quickly understand what they were about, and clarifying the payment process. While we often don't think of these moments as being part of the process, for many people they can end up making the difference between paying and not. Our changes, some of which are listed below, had a strong and immediate impact; our trial in Lexington generated a net revenue
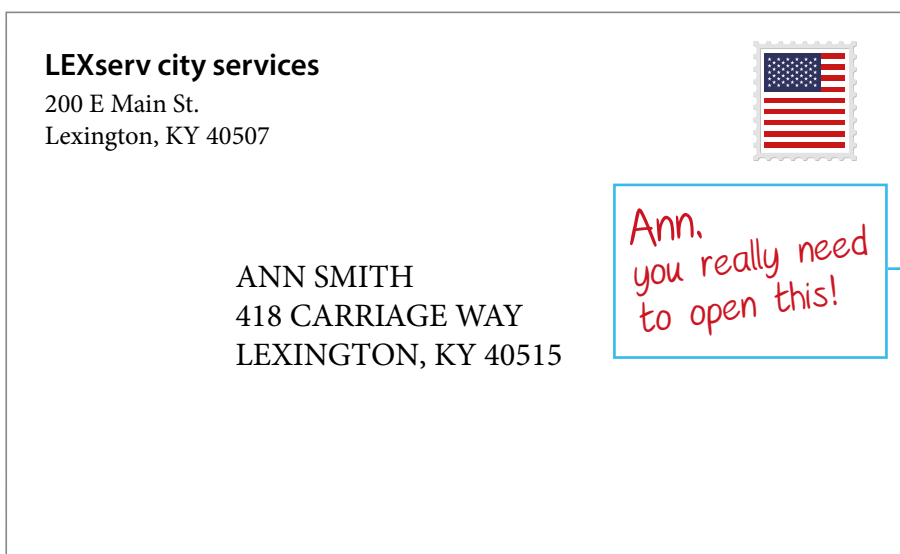
Sending a letter recovered **$139,000** in unpaid sewer bills in three months

of $139,000, and, if scaled, our changes in Chattanooga would bring in $121,865 of revenue in one month of billing. Every dollar spent printing and mailing letters generated a return of $13.33 in revenue in Chattanooga and $90.08 in Lexington.

ROI of **$90**.08 on Lexington sewer bill letters

Revenue Collected in March (Lexington)

Letter mailed March 9

■ Control   ■ Treatment

Lexington sewer bill envelope

LEXserv city services
200 E Main St.
Lexington, KY 40507

ANN SMITH
418 CARRIAGE WAY
LEXINGTON, KY 40515

Ann,
you really need
to open this!

Handwritten note

Lexington sewer bill letter

Pay Now stamp

Lexington-Fayette Urban County Government

Dear <name>,

This is how much you owe for using Lexington's sewer and water quality services: $<xxx.xx>.

To pay now, visit: www.bit.do/Lexserv

Direct link

Account Number: <customer#> - <premises#>

Without these funds we are unable to maintain the sewer, landfill, and water quality services that Lexington residents like you depend on to keep our city clean.

Since you haven't paid yet, **your name has been added to the list of customers who are now eligible to have their water shut off**. Previously, your lack of response was treated as an oversight. Now, if you do not pay or get in touch with us we will treat this as a deliberate choice.

Deliberate choice

To pay over the phone with your credit/debit card or set up a payment plan, call a LEXserv representative at 1-888-987-8111.

To pay by mail, checks or money orders can be sent with your bill stub to P.O. Box 742636, Cincinnati, OH 45274-2636 (please do not send cash).

We appreciate your payment. Thanks for doing your part to keep Lexington clean.

Sincerely,

Rusty Cook
Director of Revenue
Lexington-Fayette Urban County Government

200 East Main Street • Lexington, KY 40507 • 1-888-987-8111 • www.lexingtonky.gov
HORSE CAPITAL OF THE WORLD

Behavioral insight	Change in Lexington and Chattanooga
Our brains are constantly overloaded with information; in order to cope, we filter out much of it without thinking.[43,44]	We placed a red 'Pay Now' stamp on the top of a letter accompanying sewer bills, helping our call to action stand out against the necessary legal information. In Lexington, we also built on past research by adding a handwritten note to the outside of the sewer bill letters that encouraged people to read the letter.[45]

Behavioral insight	Change in Lexington and Chattanooga
People have a strong **status quo bias**, which influences them to stay with the present state of affairs rather than make even a beneficial change.	We framed a lack of response as a 'deliberate choice' rather than an oversight, language that also proved effective at encouraging people to pay their taxes in the UK and Guatemala.[46,47,48]
Friction costs that make things even just marginally more difficult, such as having to open a letter, can make the difference between doing something and not.	In addition to writing on the envelope, we saved Lexington and Chattanooga residents clicks by providing a link that went straight to a bill payment site rather than to a site that included the bill payment link.

A letter emphasizing that the majority of other drivers pay their parking fines within 13 days **more than doubled** incoming revenue

We did similar work in Louisville, KY, where around 36% of parking tickets were unpaid 45 days after the ticket was issued. We designed a letter for the city that incorporated a descriptive social norm; by informing drivers that the majority of citations issued in the city are paid within 13 days, the letter more than doubled incoming revenue, increasing likelihood of payment by 130% compared to those who did not receive the letter.[49,50] After accounting for printing and postage costs, each letter generated $4.53 in revenue and, if scaled, these letters could bring in an additional $100,000 of net revenue for Louisville each year.

ROI of $**4.53** on parking fine letters

In New Orleans, we aimed to increase voluntary code compliance to save the city and property owners money while reducing blight. We shared 311 complaint information via a courtesy letter with the property owners in advance of a formal inspection.

Scaling this parking fine letter could generate $**100,000** per year

The letters were behaviorally informed, including being **personalized**, having a **clear call to action**, and making use of people's natural **loss aversion** by making potential future losses **salient**. This single courtesy letter increased voluntary compliance by 16%, and we estimate that—with each instance of early compliance saving $402—if everyone in our sample had received it the city could save up to $37,000 in one year. Additionally, nudging these people into compliance early also frees up the inspectors to focus on more serious cases.

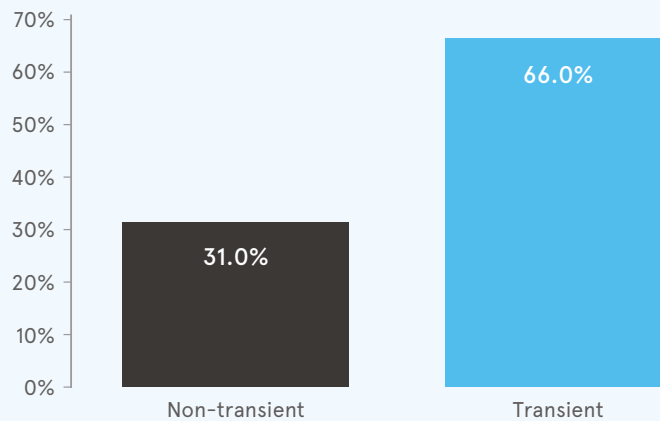## Sending a letter could save $**37,000** in code compliance costs

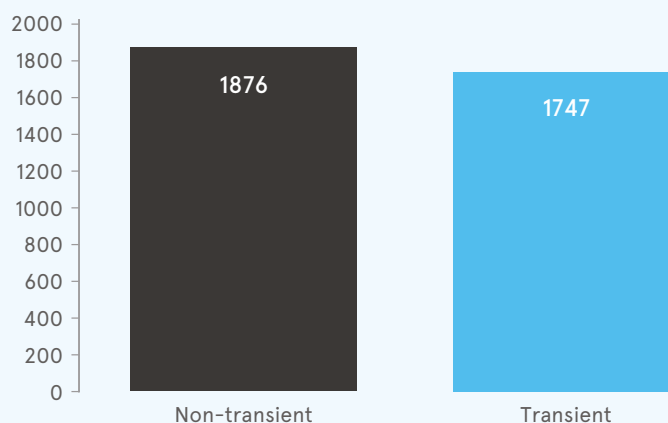## Using Data to Identify Opportunities for Policy Tweaks

In one of our partner cities, residents' failure to appear at court arraignments is costly for the residents and the city. By our calculations, no-shows cost the city over $1.5 million in 2015. Because homeless residents were commonly perceived as being by far the most likely to not appear, the issue was seen as deep, systemic, and difficult to change. As we examined the city's data, however, we discovered that while the homeless population was on average twice as likely to fail to appear,

they also made up only 31% of court cases. This meant that even though they appeared less often on average, they only made up about half, and nowhere near the majority, of failure-to-appear cases. This finding opened the door for the city to run a trial testing small changes that might increase court appearances. If successful, this trial could save the city money and residents hassle and the more severe costs of not appearing.

Percentage of People Who Fail to Appear at Court

Category	Percentage
Non-transient	31.0%
Transient	66.0%

Number of People Who Fail to Appear at Court

Category	Number
Non-transient	1876
Transient	1747

2. The environment surrounding a choice can bolster or hinder compliance

Tweaking letters could close **140** cases sooner

While the onus is on the resident to follow the rules, cities also have surprising amounts of power in structuring the environment in ways that either support or hinder residents in meeting the rule of law. For years, behavioral scientists have shown the impact of how a form is structured or how many steps are involved in following the law on whether people end up complying. For example, a large-scale field experiment showed that moving a signature box from the end to the beginning of a form can increase honest reporting, a result that could have ramifications for tax declarations or eligibility forms for assistance programs.[51] Our own work simplifying code enforcement notifications to Louisville residents resulted in them getting their properties back into compliance faster. Had all property owners received the new letter, at least 140 cases would have been closed sooner, saving an estimated $12,500 in inspection costs.
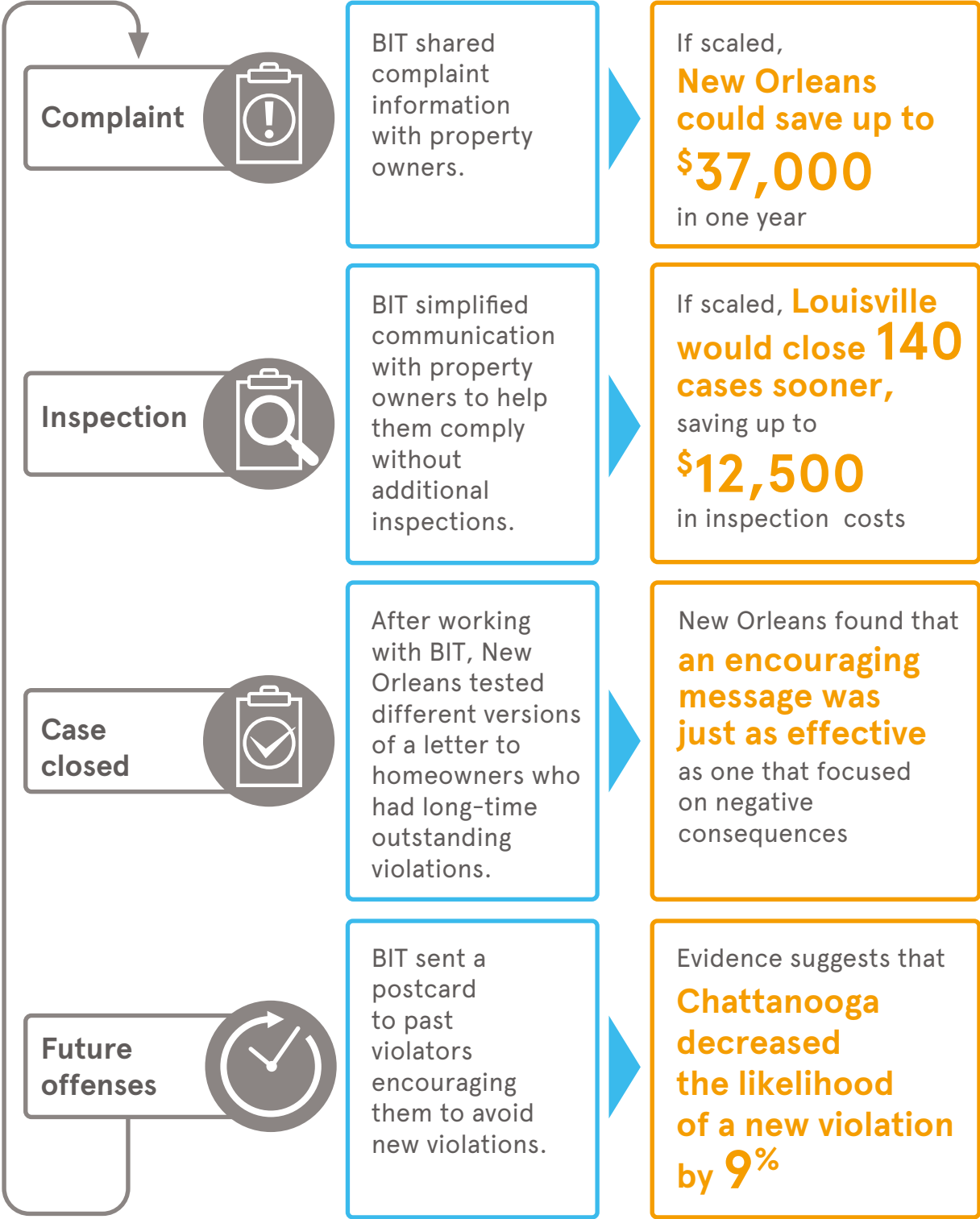
Simplifying letters could save **$12,500** in inspection costs

However, cities need not stop at forms and letters. They can redesign both the virtual or physical space in which residents are called to follow the law. For example, adjusting street lighting can decrease crime rates, and even putting up posters with eyes on them can reduce littering behavior.[52,53] Understanding the extent to which the environment we're in affects our behavior opens up a realm of possibility for regulators to help citizens comply with the law. In our work with the Dawes Trust in the UK, we are testing whether we can use the custody setting to reduce recidivism. We added handwriting from rehabilitated offenders, who are likely to be powerful **messengers**, on the cell walls. The writing talks about how the offender was able to change, which builds from research on **growth mindsets** showing that people who believe they, and others, can grow and develop throughout their lives are more likely to succeed and better able to rebound after failures.[54,55] It also builds on **implementation intentions**, discussed above, by asking the reader to identify the triggers and obstacles that might make them more likely to reoffend in the future and consider the steps they could take to progress. Results from this trial are forthcoming.

The Blight Continuum

Breaking the blight reduction process down and tweaking each step can save cities and residents time and money and improve the process for everyone involved.

Complaint

BIT shared complaint information with property owners.

If scaled, **New Orleans could save up to $37,000** in one year

Inspection

BIT simplified communication with property owners to help them comply without additional inspections.

If scaled, **Louisville would close 140 cases sooner,** saving up to **$12,500** in inspection costs

Case closed

After working with BIT, New Orleans tested different versions of a letter to homeowners who had long-time outstanding violations.

New Orleans found that **an encouraging message was just as effective** as one that focused on negative consequences

Future offenses

BIT sent a postcard to past violators encouraging them to avoid new violations.

Evidence suggests that **Chattanooga decreased the likelihood of a new violation by 9%**

3. Sometimes, the most effective approach is to delegate

Sometimes, all light-touch, positive nudges have failed, and people are just trying to break the law in question. This idea is supported by an insight from behavioral economics that the looming threat of punishment—even severe punishment—is not always enough to encourage the appropriate reaction in the moment. Because people are overly optimistic about their own abilities and prospects, they may reason that they, uniquely, will not get caught.[56] Similarly, we are notoriously bad at estimating probabilities in certain situations, which can also lead us to underestimate the likelihood of something like getting caught at a crime, especially if examples of people getting caught aren't easy to call to mind or if ones of people committing crimes and getting away are more salient.[57] When heightened enforcement really seems like the appropriate response to getting people to follow the rules, cities have to ask: how can I get the most bang for my buck? Here, creative uses of the crowd may work well.

A Note on Testing

Nearly all of the policy changes mentioned in this report were implemented as part of a **randomized control trial**, in which we split residents, businesses, or households into at least two groups, where some received a tweak and some received business as usual. The allocation process is random, ensuring the groups look as similar to one another as possible and enabling us to isolate the impact our change has.

Given that, as of 2013, only roughly $1 out of $100 of government spending was based on solid evidence of what works, this approach can have profound impacts on the efficacy of policies;[58] it can help us spot procedural errors in implementing new policies, catch changes that do not work, and understand the precise impact of the changes that do.

Testing policy changes in this way allows our partners to identify, implement, and scale the best policies that they can, be they messages about fines, paperwork for a needed social service, or trainings for government workers. The unprecedented amount of new data available due to city initiatives affords increasingly more opportunities to use this type of testing to improve policies across the board at little to virtually no cost.

The Chinese government, for example, was having difficulty regulating businesses who were evading taxes. Rather than increase inspection, they made receipts into lottery tickets so that customers would have an incentive to ask for them, leaving a paper trail the government could easily follow. This effectively mobilized the population into an inspection force and significantly increased tax revenue.[59] We see this in

action in cities already. Code enforcement officers, for example, leave brightly colored door hangers on properties they visit if the resident is out. Aside from alerting the resident, these can also serve as a visible sign that inspectors are active in the area. Similarly, researchers have recommended making parking tickets brightly colored and much larger with 'VIOLATION' printed in an attention-grabbing font in order to make the risk of getting a ticket more salient to others who drive by.[60] In other words, this strategy would turn all parking offenders into advertisements for the danger of getting a parking ticket. Smart evaluation design can help quantify the benefits of 'spillover' like this, measuring the impact not only for those who receive the communication, but on their peers and neighbors who might be impacted indirectly. By incorporating this additional impact into cost-benefit calculations, cities can better understand how much return they get on their investments and how much they can rely on social networks to complete the job.

Building In-house Skills

A key part of BIT's mission is to help cities —and our other partners—build the skills needed to apply behavioral insights and run randomized control trials in-house. Over the last year, we have worked with each of our city partners to build their capacity. Below we put a spotlight on Denver, Chattanooga, and Louisville to show how they are going about making this approach business as usual.

Denver: The City of Denver's Peak Academy is a nationally renowned training facility attended by staff from the city and beyond.[61] As part of BIT's engagement with Denver, we used a train-the-trainer model to enable Peak Academy coaches to deliver behavioral insights and evaluation training to Peak attendees. This training is now part of the core schedule with hundreds of public servants going through the course each year. More than this, the training has resulted in a suite of evaluations being run across the city. For example, Denver is now independently running evaluations on voter registration and online utility billing.

Chattanooga: To teach city officials how to robustly evaluate programs and policies, BIT developed this toolkit as part of the What Works Cities initiative. The City of Chattanooga's HR department has included this training as part of its official Learning & Development curriculum, setting a corporate expectation that city managers will use these methods to ensure value for money.

Louisville: Applying their new knowledge of behavioral science and RCT design, Louisville staff are continuing to tweak their parking fine letters to increase payments. They are also considering expanding this work to other areas, such as increasing fine payments in other departments and decreasing false alarms that require police or fire response.

The research and past work we've done on the power of messengers is applicable to this field, as well. Asking people to get vaccinated, wear their seatbelts, or recycle could be made more effective by getting others to advocate on the government's behalf, spreading the message through their own networks.

CONCLUSION

This is an exciting time to be working in cities. With growing technological options, cheaper and better data, and a commitment to engaging residents in all kinds of decision-making processes, cities across the U.S. are pioneering a new approach to governance. This approach is based on creating a strong evidence base of what works and adjusting programs to a more nuanced understanding of how humans actually behave.

Humans are messy. Serving them well means building programs and policies that embrace the systematic ways in which people may not always do what they want to do or what is best for them. We've already had significant successes working with cities to help them save money, make their services more efficient, and become better places to live. We're excited to see where this takes us next.

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