INNOVATIONS FOR SUCCESSFUL SOCIETIES

REBOOTING A RUST BELT CITY:
AN INNOVATION OFFICE FOR SOUTH BEND, 2013 – 2018

SYNOPSIS

When Pete Buttigieg became mayor of South Bend, Indiana, in 2012, the city was struggling to overcome its image as a dying community. More than a thousand abandoned homes blighted urban neighborhoods, and the unemployment rate was more than 10%. Although these problems had their roots in the changing structure of the US economy, Buttigieg said he believed that more-efficient and more-effective government could help the city attract new businesses and residents, charting a path forward. In 2013, he hired Santiago Garces, a 2011 graduate of nearby University of Notre Dame, to create a new office that would identify opportunities for improving city operations and saving money. On a tight budget, Garces assembled a small team of business analysts, who used new technologies to help streamline and modernize the city's code enforcement department, greatly accelerating the process of dealing with abandoned homes. Garces's team then took on dozens of other projects to improve service delivery while also consolidating the city's information technology resources, including outsourcing certain services to cut costs. The unit Garces created produced millions of dollars in savings during its first years and helped the mayor achieve some of his top policy goals.

INTRODUCTION

"Innovation and technology are not the same thing," Mayor Pete Buttigieg said in mid-2018, as he sat in his 14th-floor office overlooking downtown South Bend, Indiana. "This isn't about just looking for technology. I can go to the US Conference of Mayors and come back with business cards of 200 people who would be happy to sell us all kinds of technologies."

Six years earlier, at age 30, Buttigieg took office as the youngest mayor of any US city with a population greater than 100,000. A hometown boy who had gone east to study at Harvard and then to Oxford as a Rhodes Scholar, he thought that more-efficient and -effective city government could help his administration address some of the biggest problems the community faced.

South Bend was once a thriving city with a healthy economy. Its location on a railroad line between Detroit and Chicago had made it an attractive site for industry in the first half of the twentieth century. But like many urban centers in the US Midwest, the area lost industrial jobs in the decades following World War II. The Studebaker automotive plant, once the city's major employer, closed in the 1960s. Jobs disappeared and the unemployment rate hit nearly

10%. From 1960 to 2012, the number of residents shrank by almost 25%, falling to 100,000 from 130,000. Then the 2008 recession hit hard, and in 2010, *Newsweek* magazine declared South Bend one of "America's Dying Cities."[1]

Buttigieg viewed innovation as a tool for tackling those problems rather than as an end in itself. He sought new approaches to city government that would help him achieve his policy priorities.

In 2013, to spearhead his initiatives, Buttigieg recruited Santiago Garces, a native of Colombia who had recently earned a master's degree in entrepreneurship in science, engineering, and technology from the University of Notre Dame. With virtually no resources and no road map, Garces and Buttigieg set out to improve the way local government served the interests of citizens, beginning with reducing urban blight.

THE CHALLENGE

Garces had caught the mayor's attention through his work with enFocus, a locally funded postgraduate fellowship program that fostered civic innovation. Garces led a project that aimed to improve efficiency in emergency services. His team analyzed data on fire dispatches and concluded that the city's practice of sending large fire trucks to every emergency call, including medical emergencies that did not require firefighting, was wasteful. Garces proposed a new policy: if the city bought a few sport-utility vehicles, which were far cheaper to operate, and used them to respond to medical emergencies while also optimizing fire dispatch routes, it would save a projected $1.4 million over seven years. The city piloted the proposal. Seeing Garces as a potential asset to the city, Buttigieg hired him in August 2013 as an independent contractor with the title *performance and innovation manager*, charging him with finding ways to achieve some of the mayor's biggest priorities.

One of those top priorities involved clearing out the city's many abandoned buildings, which weighed on property values and created public safety hazards. A police officer told a *South Bend*

Tribune reporter. "You're seeing these houses trashed out and the copper pipes and electrical cords being stolen."[2]

Shortly after taking office in 2012, Buttigieg established a task force to determine the precise extent of the problem. In early 2013, the task force reported that there were 1,900 vacant homes—*vacant* meaning that no one had lived in the houses for at least 90 days. Of that number, 1,275 qualified as *abandoned* properties because they had code violations that had not been addressed for at least 30 days.[3] After releasing the report, Buttigieg made a public commitment to rehabilitate or tear down 1,000 abandoned homes within 1,000 days—by November 2015. But to achieve that goal and other goals—such as setting up a performance management system for city departments, helping the police department develop a strategy for dealing with violent groups, and creating a 311 call center so residents could access nonemergency services—Buttigieg's new administration would have to overcome many implementation challenges.

The first challenge was the city's old, decentralized IT system. Not all offices had up-to-date equipment or software. Worse, when Garces first set foot in the room where the city kept its computer servers, he was shocked to see a plastic tarp draped over the sensitive hardware to protect it from a dripping air conditioner. The servers were vulnerable to damage, and the city data they hosted could be lost.

In addition, the city's IT specialists were dispersed throughout different parts of city government. The Department of Administration and Finance had a small core group, but several departments had their own IT specialists—an approach that caused both redundancy and a mismatch between skills and needs.

Garces was not the first to recognize such problems. The city government had begun planning for changes to its IT capacity several years earlier by bringing together city employees and city council members to create an Information Technology Strategic Plan that was completed in 2013. Among other priorities, the

strategy called for centralized IT services and more-extensive specialization of IT staff.

Second, any effort to improve services would have to operate on a thin budget. Lack of funds presented a continuing challenge in a city with a high poverty rate and declining property values. Property taxes, South Bend's primary source of income, had fallen since 2008, reducing the resources to power the mayor's agenda.[4] "We've got to take whatever resources we have and use them better if we want to do anything new," Buttigieg said.

An additional financial constraint resulted from a 2010 state referendum that enshrined in the state constitution certain tax cuts the legislature had voted for in 2008. Although the state permitted South Bend and a few other cities to maintain temporary additional levies to fund their debt services, that privilege was set to expire in 2020.

A third challenge was likely resistance to change from city employees. Improving government processes and reforming IT systems would alter the way people worked, place some people in new positions, and push some employees out of their jobs—all of them unsettling possibilities, especially for longtime city workers.

Buttigieg said he recognized and respected the sensitivities involved. "Some resistance is inevitable," he said. "I think you need to have some regard for where people are coming from, people who come to work every day and have tried to do a good job for the city—and often have—but we're asking them to do things differently."

A fourth challenge centered on the city council, which had line-item veto power over the budget and responsibility for approving laws and ordinances, including any proposal to make significant changes in the structure of municipal government. Winning the council's support was not so much a matter of negotiating political-party divisions (Buttigieg and most of the nine council members were Democrats) as it was building trust between the executive and the

legislature and bridging generational differences. An ongoing legal dispute over an unrelated issue fueled tension between the council and the mayor's office, and a marked divide grew between older, working-class party members and their younger, more technocratic colleagues. "In the early days there were a few [council members] very aligned with Pete, . . . [but] many were neutral at best," said Scott Ford, the city's director of community investment.

FRAMING A RESPONSE

"There was no muscle memory in the city on how to do this," Buttigieg said about his initiatives. "We had limited project management ability outside of traditional roles, and we were trying to create something totally new."

Buttigieg's professional background and Garces's training in IT and entrepreneurship strongly influenced the approach the two took toward improving city processes. Their personal attributes were important factors as well. Known to constituents as their convivial "Mayor Pete," Buttigieg had been with management consulting firm McKinsey & Co. and business advisory firm the Cohen Group. "I had a background in consulting, so I guess that was where I learned about things like data, data structure, and the power of data, as well as about how to take processes and make them better, make them simpler, make them more efficient," he said.

Garces was of a similar mind-set. Mark Neal, city controller from January 2012 until December 2013, described Garces as "unique in having very strong technical skills but also being a student of people and of culture." Neal recalled that Garces frequently asked questions of city employees and offered to help whenever he could. Although many city workers were "afraid of what he was up to," Neal said, others "were saying, 'I need help, and I'm glad he's here.'"

To overcome some of the challenges he knew his efforts would face, Buttigieg tapped knowledge resources at nearby universities. For instance, he drew on a talented network of University of Notre Dame graduates to fill

positions in city government. Nearly all the mayor's initial top appointees were alumni, and many were from the South Bend area. The mayor could not offer them the money or prestige they enjoyed in the private sector or higher levels of government, but he appealed to their roots in South Bend and their desire to improve the city. As Garces sought people to work in his innovation unit, he also turned to his Notre Dame connections to find talented graduates and interns.

The mayor used Garces's work on the abandoned-properties problem as a proving ground for subsequent efforts to deal with other priorities. Reaching the goal of processing 1,000 properties in 1,000 days was a tall order for the Department of Code Enforcement, the office with primary responsibility for the project. The department's inspectors visited vacant or abandoned properties to assess whether the properties should be demolished or repaired. Then the department notified the property owners and initiated a legal process to compel the owners to make the changes required or forfeit their claims. If an owner failed to take corrective action, the city placed the home in a public land bank for future repair, or it demolished the building.[5] Shortly after joining city government, Garces predicted that at the current rate, South Bend was on pace to reach only 660 homes by Buttigieg's deadline. He would have to find a way to help the department speed up its work in order to deliver on the mayor's promise.

GETTING DOWN TO WORK

One month after Garces started his work with the city as a contractor, an unexpected complication arose when the US Navy called up Buttigieg, a reservist, for a six-month deployment to Afghanistan. Although the mayor was able to stay in touch with his colleagues in South Bend, he could not be involved in day-to-day operations. Buttigieg appointed Neal, his first controller, as deputy mayor to serve in his stead from the time of his deployment in February 2014 until he returned in October 2014.

Garces wanted to show positive results by the time the mayor returned from Afghanistan. While he worked with the code enforcement department to process abandoned homes more quickly, he started building an innovation unit, and he created a business analytics group to solve problems throughout city government. His team consolidated the city's IT services, outsourced some IT functions, launched a new performance management system, and forged relationships that supported innovation and technology initiatives.

Improving the process

After being sworn in as mayor in January 2012, Buttigieg had visited the Department of Code Enforcement. "There were literally stacks of paper to the ceiling," he said. Employees still used typewriters, and filing cabinets occupied almost half the floor space. The paper files were difficult to sort and categorize, and there were no clear operating procedures for complex cases. Moving ahead on plans to repair or tear down homes required shuffling the files between city departments. "Tearing down houses—that's the easiest part," said Brian Pawlowski, who served as the mayor's deputy chief of staff from 2014 to 2016. "The part that gets you there is much more challenging."

The mayor wanted to prioritize buildings that were dangerous and harmful to neighborhood property values. The department, which also was responsible for monitoring and enforcing zoning and environmental regulations, had to put those properties on legal and procedural lists for teardown. Then the department could move to properties that were in poor condition but for which code hearings and the threat of fines could motivate owners to make repairs.

Garces wanted to create a computer-based filing system to help code enforcement employees process abandoned and vacant properties more efficiently. Recognizing that he needed help, he began forming an innovation team on a shoestring budget. To start the task of organizing the department's data, he enlisted an intern from

Notre Dame who was studying IT management. Then he recruited a graduate school classmate, René Casiano, an adept coder with private sector experience in IT project management, as the third team member. Garces convinced the mayor's office to hire Casiano on a fixed-term consulting contract.

There were two related priorities in the code enforcement department, in Casiano's view. The first was to clarify and streamline procedures. Then the innovation team could develop technological solutions to collect, store, retrieve, and process data efficiently. "For the most part, [the vacant-properties process] was cumbersome, took a really long time, and everything was done by hand," Casiano said. Fixing that meant creating a "rigid and logical structure" for the actual process carried out by the department and for a corresponding data collection and filing system.

Understanding the existing process required meetings with code inspectors, office staff, and middle and upper management. In addition to talking with city employees, Casiano studied South Bend's ordinances and consulted the city's legal team.

Next, Casiano helped break down complex and unclear procedures into their component parts. At its most basic level, process mapping involved learning how workers did their jobs and creating charts to visually represent each step. Employees talked through every decision and action, and sticky notes placed on a wall represented each step. This would become a central part of the innovation team's work.

As the innovation team came to better understand the process of dealing with vacant and abandoned properties, Garces and his colleagues began developing IT applications that enabled the department to do its work more efficiently. Garces worked with Casiano to configure an iPad application that enabled code inspectors to input data from the field instead of returning to the office with paper forms daily. Inputting the information digitally represented a vital change because it greatly reduced the use of paper files and made every other step in the process move more quickly. The inspectors' data on code violations synced up with an in-house geodatabase that made it easy to generate code violation notices and mail them to property owners and residents.

When introduced, the iPad applications were a source of anxiety, however. "The first time we gave the inspectors iPads, they freaked out," Garces said. "They thought it was a ploy for us to fire them" by tracking their performance.

Field inspectors also objected to the increased amounts of time the new system required they spend at every property visited. "With any process that you streamline, the person that is first generating data is going to take a lot longer," Casiano said. "It's not going to take 20 seconds to ride past the house and write some stuff down. It's going to take 40 seconds to a minute, because now you have to take a picture and tag it." The extra time required by the iPad system inconvenienced code inspectors but resulted in significant time savings throughout the department.

To calm the resistance, Neal and other staff in the mayor's office put their weight behind the project and invested "tons of face time," Casiano said. "They saw me all the time. I talked to everybody. I didn't just talk to the people that were in charge. I rode around in trucks with everybody."

The iPad application enabled code enforcement inspectors to upload new information directly into a digital database, but stacks of paper files still had to be entered into the new system that Garces and Casiano had created. The project required many hours of work—more than existing city workers could provide. There was no money to hire new staff members for this purpose, however, so Garces had to look elsewhere for assistance. "During the summer, they recruited a couple of Notre Dame kids to work as interns," Neal said. "Each of them then recruited 8 or 10 or 12 friends, and for

two weekends, they ate pizza on Friday and Saturday and pounded through these more than 1,000 files . . . and got them into the database."

Using the data collected, the team helped code enforcement staff not only identify new problems but also address long-standing ones. For example, some properties with code violations had been on the books for a decade because of a porous system that allowed repeated hearings and repair agreements but often had weak follow-up to check whether owners actually fixed their properties. Improved data handling enabled city employees to easily identify such scofflaws, which enabled the department to bolster code enforcement.

By the time the mayor returned to South Bend after serving in Afghanistan, the vacant-and-abandoned-properties initiative was on track to meet his November 2015 goal. Buttigieg said he was impressed with the innovation team's performance in his absence: "Part of me wondered if I should get deployed more often." During the first six months of 2014, the team clarified the bulk of the code enforcement processes and cut in half the time required to process an abandoned property.

Creating a business analytics team

After the mayor returned from Afghanistan, the 2015 budget his office submitted to the city council included funding for a new position: that of a chief innovation officer, who would lead a small Office of Innovation within the Department of Administration and Finance. In January 2015, South Bend rewarded Garces for his team's success by giving him the new job, which put him on the regular payroll. Garces's responsibilities changed little with the promotion. "My job was to establish relationships both internally with the departments and with the outside, identify the strategic gaps in the things the mayor wants to do, and then figure out ways of doing them," Garces said.

The move gained little public attention but was the first step toward developing an independent innovation department in city government. Internally, the placement of the innovation office within the administration and finance department was a temporary stopgap—somewhere to put Garces and his team within the existing administrative structure. Garces still reported directly to the mayor's office under that arrangement.

One of Garces's key responsibilities was to analyze work processes with an eye to not only streamlining and efficiency but also to reducing error, making people's jobs easier, and improving services for residents. To do so, he assembled a team of "business analysts" who were "in some ways like an internal consulting agency, where departments can bring difficult problems that they need to figure out how to do better or more efficiently," said James Mueller, the mayor's chief of staff from 2015 to 2017.

The business analytics team slowly grew as the innovation office budget expanded. Several of the team members he recruited had humanities backgrounds and little or no business or data analysis training. "Our mentality is we just need a very dedicated and smart person, and we can teach them anything," Casiano said. "Once we find that, it's relatively easy for us to give them the skills they need." By 2016, Garces had three business analysts, and the next year the number rose to five.

The business analysts made process mapping a collaborative process. It was important that city employees saw for themselves where the inefficiencies were in their daily work life; then the solutions often seemed obvious. The business analysts helped departments design and implement fixes. And when appropriate, the analysts worked with the IT team to develop applications, databases, or other technology solutions. In choosing projects, the business analytics team generally worked on issues raised by department leaders; projects from the mayor's office had highest priority. As a last resort, business analysts turned to Garces for help in pushing a department to change its ways.

Some city agencies were easy to work with and were open to new ideas. The fire department,

for example, wanted to attract more-diverse recruits. The business analytics team provided data on historical hiring patterns and research on best practices in other cities.

Other agencies were more skeptical of the innovation team. When Danielle Fulmer became a business analyst in 2016, Garces asked her to help the police department improve their implementation of a group-violence-reduction strategy. The department was wary, Fulmer said, but she gradually built trust by getting to know key stakeholders and completing a laborious data project that nobody else had been willing to do. She then was able to help the department define processes for dealing with violent groups and to use data to develop an operational strategy.

Business analysts developed their skills through various trainings. The team refined its process-mapping abilities thanks to a trainer who visited from Peak Academy, a process improvement training center established by the city of Denver, Colorado. Training materials from the Drucker Institute, a management research group connected to the Drucker School of Management at Claremont Graduate University, helped the team develop its strategic-management-support skills, including working with departments and divisions to set forth clear mission statements. (See text box 1.)

Consolidating information technology services

The image of tarp-covered computer servers sitting in a damp office underscored the need for a formal plan to restructure the city's information technology services in order to bring the city up-to-date. The city's 2015 budget included funding for the position of chief technology officer to lead the existing central IT team. With that first

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Box 1. Process Mapping at Work

One of the many problems that South Bend's business analytics team took on involved the central mowing crew, a team of four 2-person units in the Department of Venues, Parks, and Arts that operated the city's fleet of lawn mowers. One of the crew's responsibilities consisted of mowing overgrown lawns that property owners had failed to maintain. The code enforcement department assigned properties to the crews, but it took an average of 17 or 18 days to get the job done once the code enforcement submitted a request. In the summer months, that time led to increasingly overgrown and unsightly lawns, a rise in resident complaints, and pleas from city council members to fix the problem. The issue came up in a SBStat (short for *South Bend Stat*) performance management meeting, and Lucy Macfarlane, a business analyst in the Department of Innovation and Technology, whose portfolio included the venues, parks, and arts department, worked with the mowing crew to find a solution.

Macfarlane first analyzed city data to cull basic information such as yearly number of lawns the mowing crew cut and the average time it took to respond to a mowing. She then led a process mapping exercise with the central mowing team workers, tracking each step of their workday by placing sticky notes on a wall. "This got everyone to see things visually and identify any waste areas in the process," Macfarlane said. She marked down potential areas for improvement, such as points at which team members spent time waiting for a colleague. She then led the crew through the creation of a spaghetti map, which tracked each worker's movements through a work space. "We realized it was taking the crew in the morning upwards of 30 to 35 minutes to get all the things they need and then get out the door," she said.

The exercises led Macfarlane and the mowing team to reorganize their equipment so as to minimize the amount of walking and reduce the need to wait for other workers. That cut the morning setup time in half and saved each team an extra 15 minutes of mowing a day, which roughly equaled the time it took to mow one additional lawn. Macfarlane estimated that that small change alone was worth $6,000 a year in time savings.

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step in place, Garces worked with members of the mayor's staff to develop a detailed plan, which finalized in November 2015.

The strategy called for the centralization and specialization of IT services and for the city's IT and innovation functions to locate in one administrative unit, which would eventually become a stand-alone department that consolidated IT staff and IT budgets. Instead of each IT employee being a jack of all trades, IT staff would work in one of three divisions— services, infrastructure, or applications—as recommended by ITIL (the Information Technology Infrastructure Library), an internationally recognized set of IT service management best practices. (The business analytics team would constitute a fourth division, and 311 services, which handled citizen requests for nonemergency services, a fifth.) The goal was to finish the process by 2017.

In addition to improving the quality of services, restructuring would save money. In 2016, the city estimated that implementing the plan would save more than $1 million annually in professional services while adding only around $266,000 in salaries and other expenses.[6]

In the proposed reorganization, the chief technology officer was responsible for managing day-to-day IT operations and would also serve as deputy to the chief innovation officer (the position Garces held). The innovation and technology offices would initially operate within the administration and finance department until the city created a stand-alone department.

In developing the plan during 2015, Garces had pushed hard to combine the IT and innovation functions. He said that unifying the two would ensure that the city's IT services were flexible and creative enough to support continuing innovation. An independent IT unit might be more conservative and cooperation more difficult. "Originally, the vision was to have the [chief information officer] and the [chief technology officer] be separate and have an IT organization that was separate from innovation," he said. "I argued that we wanted to have those

things be in sync because otherwise, they would always be at odds."

In November 2015, Garces hired Dan O'Connor as the city's first chief technology officer. O'Connor reported to Garces, who in turn reported directly to the mayor. O'Connor lived in South Bend and had been chief information officer at a regional bank. As the one responsible for managing technology services in city government, O'Connor would work with Garces to staff the innovation and technology offices.

The restructuring of IT services required two big changes. First, it meant the city needed employees with more-specialized skill sets. And second, consolidation would entail integrating into a central unit the IT personnel who worked in other departments. Before the changes, the IT staff in the city functioned primarily as a help desk and did relatively simple tasks such as updating websites, relaying problems to software vendors, and debugging hardware issues. But Garces and O'Connor needed workers with technical skills such as coding, database administration, and data analytics.

The personnel changes raised concerns that required tact and diplomacy. Of the six city IT workers O'Connor and Garces had inherited, they felt that three had the skills needed to succeed under the new system, and they let the three others go.

Persuading departments to integrate their personnel into a central unit was sometimes harder. The police department was initially reluctant to part with its own IT resources and IT staff. O'Connor developed a working relationship with a high-ranking police officer who helped pave the way for the changes. "He was a huge proponent of this merger," O'Connor said. "He helped us break down a lot of the walls." The officer did ask for a concession, however. The department wanted to keep valued IT workers on-site in the police building instead of moving them to the County–City Building, where the main city offices were located. (Garces and O'Connor ended up keeping a presence in the

police headquarters because office space was too limited at the innovation and technology unit.)

"There was a lot of stress" among IT staff during the reorganization, Garces said. "A lot of uncertainty." Garces and O'Connor explained how employees fit into the new structure and emphasized team building. "For nine months we decided that everyone would work out of the same office—even with severe space limitations—to make sure everyone felt part of the team," Garces said.

Garces and O'Connor also restructured the city's IT budgeting. Previously, there had been a small central IT budget and separate IT line items in each department's budget. The new system would move toward a fee-for-service model, which was typical for services one city

department provided for another. Every year, each department would receive an itemized bill for IT services, and the payments from those departments funded the technology team's work. The system was beneficial because departments paid only for the proportion of IT services they used, and Garces could rely on sufficient funding despite changing demands for IT services within city government.

To manage demands for IT services across city government, Garces created an IT governance team made up primarily of representatives from city departments. The team met at least four times a year to talk about priorities and initiatives throughout the city that demanded IT resources. The meetings provided a venue for city officials to express their ideas

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Box 2. 311

An early priority of the Buttigieg administration was to create a system that enabled residents to contact nonemergency municipal services by dialing one phone number: 311. In 1996, Baltimore became the first US city to have a 311 system, and the idea then spread to other large cities such as New York, Los Angeles, Houston, and Chicago. Buttigieg prioritized the establishment of a 311 system in South Bend, and the city became one of the first midsize US cities to introduce one. South Bend's 311 call center launched in February 2013.

The 311 call center initially collaborated with a small number of city departments but grew as the system gained popularity. By 2016, the center was receiving 700 to 750 calls a day, with seven people fielding calls on weekdays from 7:30 a.m. to 5:30 p.m. The center cost roughly $500,000 per year to operate. People called for information about city services or to report problems. Every city department had a service-level agreement that set a time frame within which various problems would be resolved.[1] For instance, if a resident reported a pothole, the division of streets and sewers had 24 hours to respond and fix the problem.[2] The 311 division kept records of every call, including callers' wait times. Data such as an uptick in the number of pothole complaints helped the city identify needs and allocate services. "The biggest reason for 311 was we were hungry for data we could use to do a better job," Buttigieg said.

In July 2018, the city launched an online 311 service portal—311.southbendin.gov—that offered information about a variety of city services. In the longer term, Garces wanted the portal to enable residents to submit complaints or requests online and then track the progress of the government's response in real time.

[1] Nicole Caratas, "South Bend's 311 center fast-tracks answers to callers," *South Bend Tribune*, March 26, 2016. Accessed at https://www.southbendtribune.com/news/local/south-bend-s-center-fast-tracks-answers-to-callers/article_475fe2a0-6bc0-5f95-ba5e-dc44ebdec843.html.
[2] Danielle Kennedy, "South Bend 311 line says calls regarding potholes have tripled," WSBT 22, May 17, 2017. Accessed at https://wsbt.com/news/local/south-bend-311-line-says-calls-regarding-potholes-have-tripled.

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about South Bend's IT needs and helped Garces and O'Connor prioritize their work. (See text box 2.)

Outsourcing services and leasing hardware

South Bend's city government had paid for and operated its own computer servers to run the city's IT systems. Garces and O'Connor moved that capacity to the cloud, which eliminated the need for city departments to maintain their own servers and enabled the city to hire private companies to host its IT infrastructure remotely. The two also began *leasing* computers and other hardware instead of *buying* them. Both measures saved money in the long run, enabled the city to keep its technology up-to-date, and made the city budget more predictable by reducing the need for costly periodic equipment upgrades.

To free IT staff for more-specialized roles, Garces and O'Connor hired an outside firm to handle the help desk tasks that had occupied the majority of IT staffers' work time. "I wanted our team to spend time engineering solutions and figuring out how to deliver value to the departments and to the residents rather than changing hard drives," Garces said. When a basic IT problem required a physical repair, the outside firm dispatched one of its workers to the city's offices.

Garces and O'Conner also wanted to reduce the number of simple issues that city employees referred for help, such as when a desktop computer's screen locked up or froze. As part of the change, Garces and his team designed a training plan to improve all city staff members' abilities to troubleshoot at a basic level. The IT staff, who no longer devoted hours of each day to dealing with basic IT issues for city employees, now specialized in different roles, such as managing infrastructure or assessing software implementation.

Performance management

Early in his administration, the mayor had attempted to implement a performance management system known as SBStat. Buttigieg

had been inspired by successful initiatives in Baltimore and Washington, D.C., which tracked data on the performance of city government and set goals for the future.[7] The South Bend system had limited success, however. City employees resisted the attempt to distill their work into quantitative indicators unless this took place in a problem solving and operational context, said Mueller, Buttigieg's chief of staff from 2015 to 2017. Departments also tended to present data that were easily available, not necessarily those that were most useful to the mayor's office, said Ford, director of community investment. The initiative yielded more problems than benefits, and Buttigieg quickly discontinued it. But the mayor saw value in the idea and did not let it die.

In 2017, the business analytics team launched a new performance management system for city government, known as SBStat 2.0. The system focused more narrowly on identifying and solving specific problems that departments confronted than it did on trying to rate performance. Leaders of each participating department consulted with the business analytics team to identify a challenge to focus on. After identifying the problems, departments worked with the business analytics team to use data to better understand the source of trouble. The team used hard numbers like financial information and trends in citizen complaints or more-qualitative data such as process maps. The departments then worked with the business analysts to choose projects that would fix the problems identified and indicators with which they could track progress over time, Fulmer said. Those goals and indicators required approval by the mayor's office. And the projects included in SBStat became the business analytics team's top priorities.

The SBStat program stipulated quarterly review meetings for each department. The meetings were to include the mayor, department leaders, members of the business analytics team, and other city employees. They summarized progress made, discussed strategies for achieving goals, set forth next steps, and devised timelines

for hitting performance milestones. The SBStat sessions were "arguably the most important meetings those department heads have with me," Buttigieg said.

SBStat started with only four city departments—police, fire, utilities, and the Department of Venues, Parks, and Arts—because the process was time-intensive and the innovation team did not have the capacity to take on additional work. The police focused on such issues as staff development and recruiting; the fire department explored problems including smoke detector distribution; and the venues, parks, and arts department examined equitable distribution of park resources across the city, according to Fulmer.

Building a network to support innovation

Although at first Garces and his colleagues found they had to work hard to secure the cooperation of city departments, by 2018 the innovation team was in demand—especially for technological solutions. "The recent problem we found ourselves in is that people became really good customers and wanted everything," Garces said. "They wanted everything to be automated. They wanted technology to errorproof their work."

Garces and Buttigieg pursued partnerships with other institutions that could help them better serve the needs of city government. They participated in networks of local government leaders and used their connections to find outside funding or technical assistance.

The University of Notre Dame was a steady source of talent, including interns and fellows, some of whom later became full-time employees. In 2015, after Garces visited the White House at a smart cities conference, South Bend became a founding member of the MetroLab Network, a consortium of city–university partnerships, and was the smallest city represented on the organization's steering committee. South Bend and Notre Dame collaborated on projects including public high-speed Internet access and an environmental cleanup project. The innovation

team also worked with university professors and students to develop a new city website that launched in 2018.

The city reached out for extra resources to fund special technical assistance needs or aspects of implementation. In 2016, Bloomberg Philanthropies enabled the city to secure help from the Center for Government Excellence (GovEx) at Johns Hopkins University with regard to using data to improve government performance. The Laura and John Arnold Foundation supported research cooperation with the University of Chicago's Center for Data Science and Public Policy. The Cities of Service coalition, a nonprofit organization founded by former New York mayor Michael Bloomberg, assisted in an effort with citizen groups to reduce urban blight through home repairs, lot transformations, and community cleanups.[8] South Bend also joined the Civic Analytics Network, a network of city officials focused on data-driven innovation.

OVERCOMING OBSTACLES

For the innovation unit, the biggest rising challenge was sustainability. The project was closely tied to Garces and Buttigieg, whose personalities and vision were important factors behind the unit's growth. The difficulty of sustaining the initiative had already started to manifest itself with the mayor's plan to make the innovation and technology unit a full-fledged department by 2017. From 2013 through 2014, Garces was a contractor in the mayor's office. In 2015 and 2016, the fledgling program operated in the finance department, though it reported to the mayor. The plan to create a Department of Innovation and Technology would put the unit and its functions on firmer footing, but the proposal required support from the city council, which reviewed and approved city spending and ordinances. The nine-member council had passed the 2016 budget by a five-to-four vote, and the mayor's team had to make sure the 2017 budget, which included the creation of the new department, would make it through the council.

Some council members expressed skepticism about creating the innovation department because they worried about adding new salaried positions to the budget while the city was struggling with declining revenue. Diminishing property taxes, brought on by local economic conditions and a statewide property tax cap, pinched resources.

City officials met with council members to sell them on the idea. They emphasized that the department would fulfill key goals in the city's IT strategic plan, which council members—including the council chairman—had helped develop. They also showcased outcomes from the innovation department that spoke to council members' priorities. Building personal relationships was vital. "It's easier to relate to a person than it is to an official," said Ford, director of community investment from 2012 to 2016. The city officials' outreach was successful, and the city's budget passed by a seven-to-two vote in October 2016.

The council's approval of the department was an important step that kept Garces and Buttigieg's plan on track, but there were other risks to continuity too. By 2016, Buttigieg had earned national recognition for his work in South Bend. He was the subject of profiles in many national publications and seen as a potential future star of the Democratic Party. In 2017, he ran for chair of the Democratic National Committee, and although he ultimately withdrew his candidacy for the post, his effort raised questions about how his departure would affect the city's commitment to innovation. A successor might have taken a different approach to government, set contrasting policy objectives, and displayed less enthusiasm for innovation and technology.

Pawlowski, the mayor's deputy chief of staff from 2014 to 2016, said new processes and operating procedures were well integrated into city government functions and would survive any change of administration. Formalizing the innovation unit as a department was an important step toward sustainability, because a serious attempt to dismantle it would require changing ordinances and approval by the city council.

Garces was also key to the initiative's future. Mueller, Buttigieg's chief of staff from 2015 to 2017, said he worried more about leadership in the department than about what would happen if a new mayor came on board. He said Garces was a significant exception to the conventional wisdom that people with technology administration backgrounds were not always so-called idea people. The ideal chief innovation officer had both a big-picture understanding of how the innovation department contributed to the improvement of city government and the achievement of policy goals, along with a strong understanding of the IT and data systems needed to fuel new innovations.

But it was the combined influence of the mayor and Garces that made the program work. "It comes from the top down," Casiano said. Garces "would have never come here and worked if Mayor Pete wasn't mayor. It takes somebody at the top to identify a very bright person and say, 'I want you to come work.' And that kind of flows down. I would not have come here if [Garces] wasn't here."

ASSESSING RESULTS

Consolidating the city's IT services under the Department of Innovation and Technology cut millions of dollars out of the budget. By 2016, South Bend was saving more than $1 million per year in professional services by outsourcing IT help desk services, standardizing the procurement of IT solutions, using centralized procurement of IT products, and migrating to the cloud.[9] Consolidating the telecommunications infrastructure in 2017 alone saved $373,000 per year—money that Garces reinvested in connecting the city to a reliable, high-speed fiber-optic network. Those savings came while the city's IT expenditure remained at roughly 2.2% of the operating budget—less than the benchmark of 3 to 6% for other, comparable cities.[10]

There were additional areas of cost savings as well, some of them unexpected. The department took over telephone service for all of city government, for example. With the bills

finally visible in one place, the team found that the city had been paying $600,000 annually for lines and circuits that nobody was using.

The innovation team fully funded its work by collecting payments from other departments for the services they used. By 2018, the total annual budget of the Department of Innovation and Technology was around $7 million. The department offered its IT employees salaries that were competitive for South Bend, although team members would regularly receive more-lucrative offers from the private sector, Casiano said.

The business analytics team that Garces had started and developed underpinned some of the mayor's top policy goals. "The creation of a deep bench of capable business analysts . . . gave me a whole different level of insight into the operations that we have been running all along," Buttigieg said.

The business analysts' work transformed the way the code enforcement department functioned. The city easily surpassed Buttigieg's goal of processing 1,000 abandoned properties by November 2015. Buttigieg was able to publicly tout the successful fulfillment of a policy promise, and top city officials were impressed by the innovation team's performance. "Internally, that was huge," said Ford. "It hit one of the mayor's top three goals."

The data provided by the innovation team also enabled the Department of Code Enforcement to identify further reforms. After analyzing inspector-activity mapping data, the department redrew inspection districts to make the division of work more equitable, Garces said.

The team took on dozens of projects throughout city government. A business analyst helped identify the best spot for a new city park. A public online police transparency portal communicated selected information on police activity, including arrests, citations, and a map showing where in the city each incident occurred. A group-violence-intervention database that collected information on gangs and other violent groups in the city provided easy access to information that was previously in paper files or

simply resided in police officers' heads. The business analytics team also helped the fire department develop a recruitment strategy to improve the diversity of the fire department's workforce. The team relaunched the SBStat 2.0 performance management system with a view to identify problems in key departments and apply data to support solutions.

The business analytics team put government data on publicly accessible websites and helped city employees adapt to new technologies. Paper files in city departments became computerized databases, which streamlined processes and made service delivery more efficient. On the street, South Bend's citizens recognized the changes as varied as more-reliable trash pickups and better mowing and maintenance of city parks and other public spaces.

REFLECTIONS

One of the most important lessons from South Bend's experience during 2013–18 was that small and medium-size cities could benefit from innovation as much as large ones can. "We view our scale as very beneficial for successfully innovating," said Mayor Pete Buttigieg, who began a second four-year term in 2016 after winning reelection with 80% of the vote. "Because we're 100,000 people, because we're comparatively low income and very diverse, it means that we're a very good test bed for ideas. We're big enough that when you try something here, you'll hit the issues you would . . . experience in a big city. But we're a small city, so we can be more nimble, we can be more creative, and I think we can, in some ways, take more risks."

Chief Innovation Officer Santiago Garces agreed. "We have the ability to coordinate a lot of things that are very hard to coordinate in a larger city—like the data strategy, the IT strategy, and behavioral pieces," he said. "There are all of these tools popping up in local government that in a larger city would have different owners. . . . What we lose in capacity, I think we gain in articulation and coordination."

Garces emphasized that in 2018, cities of all sizes had clear sets of instruments to use for innovation—something that had not been the case when he began in 2013. "There is a tool kit of innovation in government—especially in local government—that is no longer experimental," he said. "I think that it is an expectation that all cities are going to be doing some of these things. Then part of what every city will have to do is determine what is the best fit of which of the tools and how do you adapt it to a context." Garces added that a rich network of civic innovators had emerged across the country to help cities move forward with technological innovation. "The nice thing is that since it's become more prevalent, there's also network of practitioners," he said. "We host a lot of people, and we talk to a lot of people on how to get this stuff set up, so you don't have to go through some of the bitter lessons."

South Bend's leaders cautioned against looking for technological solutions before fully examining their problems and potential responses. "Software isn't a solution; it's a means," said Scott Ford, who served as South Bend's director of community investment from 2012 to 2016. "No system is going to introduce a culture or create a means for dialogue." Less than half of the business analytics team's interventions involved high-tech solutions. Many involved only

talking through this process or that with city employees and working together on solutions.

Neither was there any inherent advantage in being an early adopter of a new technology, Garces said. "I had a person ask me, 'Wouldn't you like to be the first city on the blockchain?' I said no—not intrinsically. I would want it if there is something about being on the blockchain that makes me do my job better for our residents."

South Bend's city government accepted a greater degree of risk than many cities did, and the mayor expressed a willingness to fail if lessons could be learned from that failure and if essential city services were unharmed. "Government is different from business, and so there are some reasons for the risk aversion," Buttigieg said. "The tech sector talks a lot about failing fast and failing forward, and we allow some room for that in some initiatives. But we also deliver water. . . . If our job is to get you a glass of clean, safe drinking water that doesn't poison your family, we can fail at that exactly zero times."

Not least, innovation in South Bend benefited from Buttigieg's open and straightforward commitment to changing the way government worked in the service of citizens, Ford said. "It is important for innovation to be authentically embraced by the elected official, and they know it is, with Pete," he said. "It's not a buzzword; it's part of his operating ethos."

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[9] Data from the city's 2017 budget presentation.

[10] The city's 2018 budget presentation.