THE FUTURE OF CONNECTED GOVERNMENT

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Dear Government Leaders,

As the public sector evolves to keep pace with a digital world — one in which the availability and use of data is pervasive — government leaders across the country are lending their thoughts on how best to appropriately adapt and innovate.

Tyler Technologies Data & Insights Division recently spoke with three such leaders who offered observations as well as vision for three key areas of public sector transformation:

1. **Modernizing Business Intelligence in Government**
   Modernizing business intelligence in government begins with creating a more efficient process for getting data in the hands of users. Along with this, a shift from a siloed perspective to a cross-departmental, enterprise-wide perspective on data is necessary. Finally, a truly modernized system leverages talent differently than traditional civil service models.

   Featured Leader: Oliver Wise, data academy director, Tyler Technologies Data & Insights Division

2. **The Evolution of Performance Management in Government**
   The evolution of government performance reporting programs is evident in a shift from a top-down, compliance-driven approach to a bottoms-up process that helps departments optimize program performance and connect it with financial and operational outcomes.

   Featured Leader: Kimberly Olivares, chief performance officer, City of Austin Office of Performance Management

3. **Inter-Agency Collaboration and Data Sharing**
   The big challenges facing government, like fighting opioids or improving access to affordable housing, are all challenges that require close inter-agency collaboration and data sharing across traditional silos. A modern data-as-a-service system with built-in data governance can help overcome the inertia and fear that may get in the way of needed collaboration.

   Featured Leader: Tyler Kleykamp, chief data officer, State of Connecticut

Moments of challenge require governments to not just do more with less, but to do things differently with less. The public sector must leverage the power of data — government's most abundant yet most underutilized asset - for innovation and sustainability. Read on to see how pioneering thought leaders in our field are overcoming obstacles and moving toward modernization through the use of data.

It is an exciting time to be a part of this public sector evolution. Be sure to visit us today to learn how the Socrata® Connected Government Cloud can power these and other future visions in your own organization.

Sincerely,

Kevin Merritt

President, Data & Insights Division, Tyler Technologies

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Modernizing Business Intelligence in Government

Oliver Wise
Data Academy Director,
Tyler Technologies
Data & Insights Division

Number of years in public service: 8

Biggest win in your public service role: Implementing "BlightSTAT," which helped the city reduce more than 15,000 blighted addresses in five years.

Why were you in public service: I was inspired by my mother's community service in the small town in which we grew up. She organized my town's first public sidewalk and community center, and I was moved by how nuts and bolts local services can shape a community.

First job in public service and where: Policy Director, Office of the First Deputy Mayor, City of New Orleans

Organizations you volunteer with: I'm the coach of the chess club at my kids' public elementary school.

Oliver Wise is the director of Socrata Data Academy. In this role, he helps governments develop the skills, leadership strategies, and execution tactics necessary to harness of the potential of data to transform public services.

Before joining Tyler Technologies Inc., Oliver was the founding director of the City of New Orleans Office of Performance and Accountability, the City's first data analytics team. Launched in 2011, the office leverages data to set goals, track performance, and get results across City government.

Oliver's work in New Orleans has been recognized with an Organizational Leadership Award from the American Society of Public Administration, Certificate of Excellence by the International City Managers Association, an Innovation Award from the Bureau of Governmental Research, Certification from Bloomberg Philanthropies' What Works Cities program, and a Bright Idea award from the Harvard University Ash Center for Democratic Governance and Innovation. He was also named to Government Technology's "Top 25 Doers, Dreamers, and Drivers" list for 2015.

Earlier in his career, Oliver was a policy analyst for the RAND Corporation and the Citizens Budget Commission of New York City. He is also a co-founder of the Santorini-based Atlantis Books, which National Geographic listed as the best bookshop in the world. He holds an Masters of Public Administration from NYU Wagner, a Bachelor of Arts from Tufts, and lives in the Mid-City neighborhood of New Orleans with his awesome family: Ryan, Annie, Olive, and Eamonn.

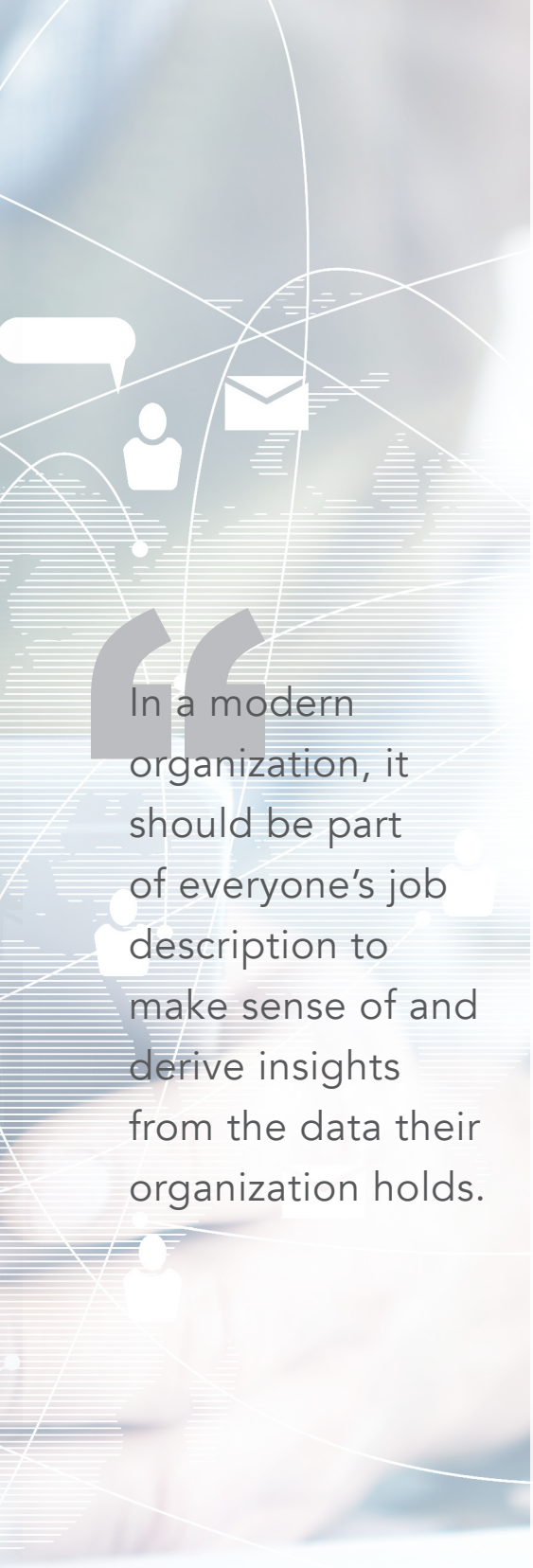
What does modernizing business intelligence (BI) mean to you?

The first component of modernizing business intelligence is creating a far more efficient process for getting data in the hands of users. The second is the development of a cross-departmental, enterprise-wide perspective on data, rather than a siloed perspective. Third, a modernized business intelligence system leverages talent differently. A modern BI system is less reliant on a handful of people with specialized skill sets and instead allows any inquisitive government generalist to access data whenever he or she wants it. This leads to the democratization of data and smarter problem solving.

Modernization requires changing the business flow, specifically in terms of how one acquires data in a public sector organization. The necessary transformation here is a move from a series of requests for data along a chain from decision maker to report writer, to a self-service approach in which the employee in need of the information has easy, immediate access to it.

The old model used static, printed reports that were stale upon arrival. Now, with tools like the Socrata Connected Government Cloud (SCGC), data exists in a platform that allows a decision maker or anyone in the organization access to it whenever they want. There is access not just to up-to-date data, but to automated reports and visualizations for critical context.

Modernization also leverages data to break down organizational silos. In order for that transformation to occur, the nervous system of government has to be inherently cross-departmental, and you need that data integration layer in order for the left hand to talk to the right hand. A tool like SCGC allows that to occur.



> In a modern organization, it should be part of everyone's job description to make sense of and derive insights from the data their organization holds.

Specifically, why does this modernization need to occur? What hurdles or inefficiencies do the changes you noted above address?

There are many examples that can illustrate the need for modernization. Code enforcement comes to mind right away. A fire department might not have access to the data on severely blighted properties, but that information is critical from a responder safety standpoint. A firefighter's life could be put at risk trying to save a building that is blighted and unoccupied if critical intelligence on property conditions is not shared in the same data nervous system.

This was the case in New Orleans where the fire chief had his own team go out and collect data on which buildings were blighted. The fire department needed this information to let their firefighters know which buildings were vacant and unsafe. Meanwhile, the city's code enforcement team also collected data on blighted properties. In this case, the city had two parallel operations of data collection that resulted in huge amounts of wasted staff time and also two differing sets of numbers for the same data query, creating confusion.

Practically speaking, how can governments implement a solution on the ground to meaningfully move toward modernizing their business intelligence and overcoming inefficiencies?

Most important, governments have to take data sharing seriously and invest in an infrastructure that allows for data sharing to occur sustainably, reliably, and securely on an ongoing basis. Luckily, those infrastructure solutions are becoming cheaper and more accessible. It doesn't have to be a $5 million, on-premises data warehouse.

What is the impact on agency staff at all levels once leaders commit to an organizational transformation around data?

The self-service functionality in SCGC democratizes access to data across the enterprise. It is no longer the case that you rely on coders to access data; in a modern organization, it should be part of everyone's job description to make sense of and derive insights from the data that their organization holds.

That is the easiest way for governments to become more productive and efficient. The one resource governments have in abundance is their data. In order to exponentially increase the opportunities to find valuable insights, you have to increase the number of people who have access to that data. One way is to hire a whole slew of programmers, but governments, by and large, simply do not have the resources to accommodate that. Another more realistic and efficient way is to have tools that allow for self-service access by rank and file employees to their organization's data.

After the business flow is changed and government agencies become less siloed with respect to data, do new opportunities for innovation emerge?

The best ideas come from the people who know their work the best. Front line personnel know best where the opportunities are to be more efficient. If you can empower those people with the information they need in order to be more productive, they will no doubt lead the way in providing enhanced service delivery and recognizing additional opportunities for efficiencies and innovation in their niche areas.

Does modernizing business intelligence in governments have any impact on the citizens they serve?

A modern approach makes the citizen engagement proposition far more cost-effective and meaningful. Many governments have taken steps to open their data to the public and to invite the public in to see data on how government is performing. Our theory of change is that theory of change is that it is a fantastic thing for governments to do, but if open data is more than surface deep – if it is a byproduct or feature of a healthy, strong, internal data sharing program – that open data program is going to become much stronger and more rigorous.

> In order for transformation to occur, the nervous system of government has to be inherently cross-departmental.

The Evolution of Performance Management in Government

Kimberly Olivares
Chief Performance Officer,
City of Austin Office of
Performance Management

Number of years in public service: Approximately 18 years (including when I was serving part time).

Biggest win in your public service role: Facilitating the development and adoption of the city's first strategic plan since the early 2000s, initiating a new mindset for how we serve Austin.

Why were you in public service: I grew up in city hall in my hometown — my parents were active in the community by serving on boards, commissions, and city council. I understood the importance of serving my community from a young age … it is in my blood.

First job in public service and where: Congressional intern in the district office of former Indiana Congressman Tim Roemer. My first real job was with the City of Austin in the budget office as a management analyst.

Organizations you volunteer with: Notre Dame Club of Austin I also make a goal to donate blood through "We Are Blood."

Kimberly Olivares is the chief performance officer for the City of Austin's Office of Performance Management.

The office supports the city's commitment to instill a culture of continuous learning and improvement throughout the organization. In that role, the office is responsible for the city's organizationwide strategic planning development and implementation, award-winning performance measurement and organizational alignment program, performance-based data analytics, and a Lean Six Sigma-based process improvement training academy and consulting service.

Previously, she served as deputy budget officer for the city where she managed the capital improvements program finances, financial services information technology support team, and performance measurement program.

How can data transform a department internally so that it becomes ready for increased focus on performance measures?

In Austin, we viewed using a single system to create a single version of data truth as a way to keep everything "alive." Easy visualizations and current information enabled everyone to become engaged, motivated, and invested. The data created connections between people in departments who would not normally work together, which set everyone up — organization-wide — as being on the same page in terms of current state and future goals.

Breaking down divisions between departments also created a collaborative, strategic planning process. We now have teams across the organization working together and meeting on an ongoing basis. Creating an opportunity to break down silos and get out of the day-to-day business allows people to become more creative and to test out new ways to better meet our goals to everyone's benefit.

Can you describe the evolution of performance management in government as you've experienced it?

As we have all seen data accessibility grow in recent years, we have also seen a significant growth in the desire of elected officials, government leadership, and the community to use it far more actively. That has had a direct impact on the evolution of performance management in government. What was once governments monitoring only a handful of performance measures has transformed into a complete framework that embraces the power of data and data analytics in a far more strategic way. It drives our ability to truly know if we are accomplishing what we set out to, our ability to engage all levels of the organization around performance and data, our ability to engage the community in a far more effective and meaningful way, and our ability to make things better.

Is the primary focus of performance management public accountability and engagement, or is it to measure progress against specific goals to improve outcomes?

I don't think you can have one without the other. You must set goals and desired outcomes as part of accountability, and you can't set those goals or outcomes without engagement. Serving our community must be a collaborative effort, internally and externally. The whole point of performance management is to fuel a culture of

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continuous improvement in our organizations and strive to serve our communities to the best of our abilities.

If we are fully transparent, internally and externally, about progress (or a lack of progress), then we can have far more consequential discussions and decision-making processes that mean better results for our community. A former colleague of mine once remarked, "Are we doing the right things, and are we doing those things right?" I think performance management is the foundation to an organization's ability to answer that question.

Talk a little bit about the link between performance and budgeting.

Budgeting has moved to outcomes and is not for departments anymore. Citizens typically do not find the budgeting process helpful. A community survey done recently showed that only seven percent of Americans have attended a council meeting and only three percent have done so in the past year. Engagement is low.

To address this, we should put our budget information into something that can be understood by the public. As we look at the budget and as we talk to council, we can phrase things better by putting it into language related to outcomes, such as, "Here is how much you are investing in safety. Here is how much you are investing in lifelong learning," etc.

People don't care about spending on utilities versus parks and recreation. They just want to get their kid to soccer practice. We are trying to change the conversation around these outcomes, and we are segmenting the performance data to make sure the budgets are equitable and understood. Internally, numbers go directly from the budget to a staff outcome. People are not just clocking in and clocking out; they are coming to work every day to serve the community and make a difference in people's lives. These outcomes and how we use them make up our true North Star as a service organization.

What about the link between performance and operations?

I believe people are seeing the link between performance and operations more and more each day, particularly in organizations embracing lean programs and techniques. You don't need the most complicated technology available to make performance data a part of your everyday operations. Simply gathering a team at the start of a shift or week for a short discussion around the stats from the prior day or week and soliciting ideas to make improvements can have a big impact operationally and culturally. For organizations with Lean programs, the performance data is essential for the analysis required to calculate lead and cycle times and identify opportunities to reduce waste. The reduction in waste can mean big savings in terms of dollars and employee time but also big improvements in the employee and customer experience. It only takes one or two solid process improvement projects to convince people about how important the link between performance and operations is.

Does this link between performance and operations translate into more effective service delivery or meaningful citizen impact?

Absolutely. Our cross-departmental teams, for example, are working to solve real problems such as homelessness. These teams are able to access and utilize data to collaborate and creatively respond to homelessness using facts to meet real challenges.

Equity is also a very important issue for us. When we were going through the most

recent strategic planning process, we were focused on equity. In all of our metrics, we set expectations for demographic segments such as age, gender, ethnicity, and income. With all of that information aggregated, it did not tell us enough. We needed the breakdown to ensure that our resources are being utilized and distributed for maximum equity. In order to show our commitment in this area to the communities we serve, we plan to show these measures on a dashboard for open performance in a way that is visual and interactive.

What advice would you give your peers out there who are just starting a performance program?

Be patient. It's a marathon, not a sprint. You will encounter naysayers and hurdle after hurdle, but if you keep focused on the amazing things that performance programs can do for your organization, it is always worth it. Plus, you are not alone. You will find amazing supporters throughout your organization that will fuel your passion, and there are so many others from other governments that have gone through what you are going through when starting a performance program. Lean on your colleagues not only for lessons learned, but to be that supportive voice we all need to keep moving forward. I am incredibly thankful for the performance program network. They have been invaluable.

Inter-Agency Collaboration and Data Sharing

Tyler Kleykamp
Chief Data Officer,
State of Connecticut

Number of years in public service: 17

Biggest win in your public service role: Whenever people do the right thing without me getting involved.

Why were you in public service: To help make Connecticut a great place for everyone who lives here.

First job in public service and where: Environmental analyst at the Connecticut Department of Public Health.

Organizations you volunteer with: Youth soccer coach.

Tyler Kleykamp is the State of Connecticut's Chief Data Officer, within the Office of Policy and Management. He is responsible for directing, managing, and overseeing staff and activities related to the collection, analysis, and dissemination of the state's enterprise information assets.

In doing so, he leads the state's efforts to use data to enhance the efficiency and effectiveness of state programs and policies. Tyler previously served as chairman of the Connecticut Geospatial Information Systems Council as well as the State GIS coordinator.

In addition, he has led numerous initiatives to improve data and information sharing including emergency management and disaster response; transparency and accountability during the American Recovery and Reinvestment Act; and land use and economic development activities. In 2016, Tyler was the recipient of the U.S. Open Data Institutes' Open Data Pioneer award and was named a Data and IT Innovator by Route Fifty.

Can you give us some examples from your experience in CT that would help illustrate the need for agencies to collaborate and share data?

We have data conversations with the legislature or among our agencies when we're looking at issues like child welfare or the criminal justice system, for example. With programs that serve people, state personnel often wonder things such as, "What happens to children after they leave DCF custody?" A lot of times we don't think we know that answer because the agency doesn't track that information once individuals are out of its program. The reality, however, is that we do know things about the people we serve. We know, for instance, whether they're employed, or, in the case of children, whether they end up in the adult correction system. We actually have a lot of the data to answer our questions by looking into other systems.

As a real-world example, opioids and addiction are high priorities. In Connecticut, we were able to access data on individuals who died as the result of an overdose and link that with Department of Corrections data. In this way, we identified individuals who died as a result of an overdose along with whether or not they had been incarcerated at any point. Doing this, we found that in 2016 half of the people who died as result of an overdose were formerly incarcerated or involved with the prison system in some way. That is really valuable information to have because it informs our actions going forward. We have an obligation when people are entering the system to make sure that they are set up for success and get the care that they need, and data enables us to do that better.

How are CT agencies' abilities to access others' data hindered, and what are some possible solutions to mitigate those access barriers?

One big challenge is on the technology side. Government data systems, especially the larger ones, are typically older. There are lots of data quality issues, and for the most part, these administrative data systems aren't collecting data to be accessed and analyzed in bulk. They're collecting data to administer a program or adjudicate a claim. Because of that, what's being entered is what works solely for that system, that program, or that case worker, and there's no great impetus to do anything more or different there.

> The first part is getting people to just understand and embrace the idea that their data has value beyond the purpose for which they collect it.

There are challenges that are presented in our ability to analyze data, but they can be solved. We're working on a concept called DataOps for Government, which is about bringing together everyone involved in this data pipeline from the person who is entering data to the IT people who manage the database to the analysts who want to collect and work with it, and even to a manager or agency head who is going to use it for decision making. The point is to get everybody to understand the role they play and how important they are so maybe that case worker realizes, "Hey, if I just follow these three or four simple rules when I enter data, I'm going to make somebody else's job down the line much easier, and hopefully they'll be able to develop answers or insights that will make my job easier, too."

Can you talk about a modern data-as-a-Service (DaaS) approach specifically? How does that technology approach offer solutions or make data sharing easier?

I think in both the public and private sector we're seeing a desire for self-service data access. We need to empower staff with the data they need to do their jobs and empower them to find new solutions or insights. These are the people who are most familiar with the programs or services.

A DaaS approach should give users the freedom to operate while preserving the need to maintain a common system of reference. In essence, we can still provide a unified and trusted source of data while also offering users and analysts flexibility to operate in an environment that is comfortable for them.

How do you convince the value of meaningful data use to your various constituencies: state agencies, the governor, the legislature, citizens? How do you make the case for this and receive buy-in and support?

Our administration understands it and gets it. I don't think it needs to be a strong case, necessarily. I think the bigger issue is that sometimes we don't make the case in terms that executives or decision makers can understand. We talk about the potential and all these great things that we can do with data, but it is more useful to look at a legislative task force or initiative of the administration and say, "Look at these questions that you have. We can answer these questions for you with relative ease if we take this type of approach. If we make the investment to do this, we can answer these questions." You can use real examples from when decision makers needed data.

For example, our governor wanted, at one point, to know the number of boats registered by town. The request came out and people wondered why that data wasn't available on our open data portal. There's an opportunity to say, "If we're proactive and thoughtful, then you won't have to ask for this anymore. It will be available and accessible when you need it." You need to put it in those terms - the processes that people go through on a daily basis to get information. What if they didn't have to go through those processes? How much easier would their jobs be?

The same thing holds for the agencies. As challenging as one agency might be in obtaining access to its data, that agency is similarly requesting data from other agencies. We're putting the same message out to them — this is a share and share alike relationship, and you have to be willing to share and participate. If everybody contributes, it makes everybody's life easier.

> We can still provide a unified and trusted source of data while also offering users and analysts flexibility to operate in an environment that is comfortable for them.

Bottom line, what can state governments and individual agencies themselves gain from increased collaboration and data sharing?

Sharing and collaborating make operations significantly more efficient. Just look at the process of emails and meetings and all the effort that goes into sharing data. If you have to do that every time you need data from somebody else, it's a real slog. The reality is that if we just go through that process once and come up with a way to share that's repeatable and reproducible, it saves headaches all around.

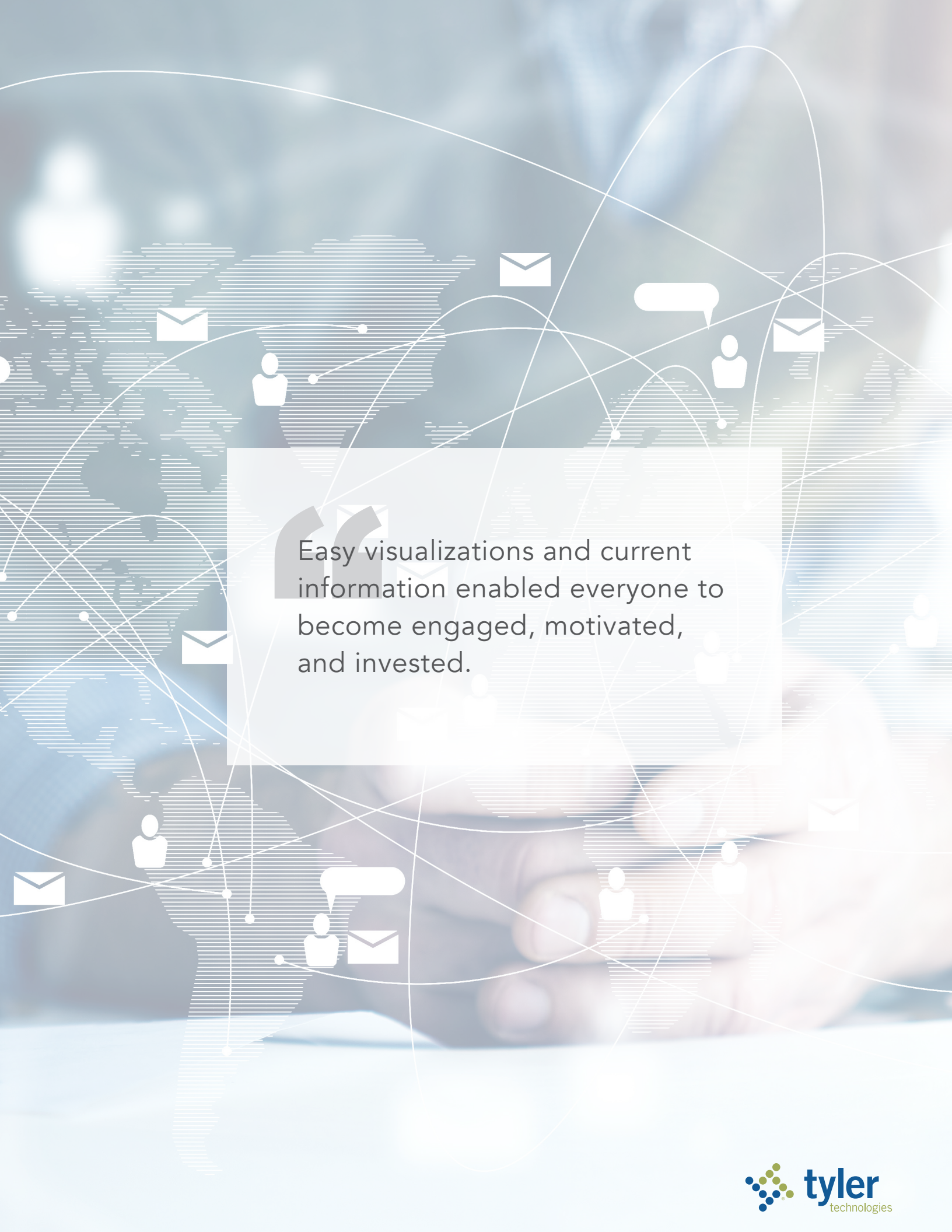
The second piece is that we know there's value to be derived, or insight to be gained, from increasing access to data, and agencies can very easily help others acquire what they need. For instance, we had someone who needed data on gas stations that had generators. Now, this wasn't a question that was going to save the state $2 million. But, it did speak to a safety issue. First, we knew we had data on all the gas stations because we license them. We realized that when stations renew their registrations, we could simply add a question to the existing form about the generators. Now, the agency that needs the information receives it with very little impact on the agency that collects the data. In addition, now the collecting agency knows that something it does is valuable to someone else.

What is the benefit to the state's residents?

On the open data side, this type of sharing and collaboration creates a more effective state government, with better public policy and better outcomes. We had an interesting situation recently when all this new web traffic was coming in from Facebook™, and it was residents searching for pharmacies that prescribed Naloxone, due to the national conversation on the opioid crisis. There was also a conversation on a community page that began as a typical complaint about high taxes and low benefit, but the conversation radically changed when someone posted a link that compared mill rates (the local tax rate per assessed property value) by town. That resource led people to have a rational, fact-driven conversation around actual data, and it was very positive.

There is also a way to better understand individuals and how we can best serve them that we're just scratching the surface of. We hear complaints from people that they have to go through multiple agencies for services, but that each department is siloed and doesn't know about their other interactions.
To mitigate that is a very, very significant outcome of all of this. It's a little more difficult when you're dealing with a case management setting where you have to have highly accurate information integrated about individuals, but at the very least, if you can start to understand some of the trends, service delivery will be enhanced.

For example, one of the things we know by integrating data across some of these systems and looking at how many systems people touch, a small percentage – say 25 percent — of individuals receiving services consume a higher percentage – a disproportionate share — of those services. Maybe they consume 60 percent of the overall services, and in terms of the actual dollars spent, it may be even higher, around 70 to 80 percent of our overall spending. Knowing that we're spending a high amount of money on a relatively small population or portion of that allows us to then focus in and figure out not only how better to serve them, but also how to do it in a more efficient and cost-effective manner.



> Easy visualizations and current information enabled everyone to become engaged, motivated, and invested.

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Tyler's Connected Communities vision empowers local governments and schools to work beyond agency and geographic barriers, centralize data, connect processes, and engage citizens.

Join us today to manage your biggest challenges with technologies designed specifically for you.

About Tyler Technologies, Inc.

Tyler Technologies (NYSE: TYL) is a leading provider of end-to-end information management solutions and services for local governments. Tyler partners with clients to empower the public sector - cities, counties, schools and other government entities - to become more efficient, more accessible and more responsive to the needs of their constituents. Tyler's client base includes more than 15,000 local government offices in all 50 states, Canada, the Caribbean, Australia, and other international locations. In 2017, Forbes ranked Tyler on its "Most Innovative Growth Companies" list, and Fortune included Tyler on its "100 Fastest-Growing Companies" list. More information about Tyler Technologies, headquartered in Plano, Texas, can be found at tylertech.com.

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