LEADING WITH DATA AND INNOVATION

Louisville: excellence in innovation, data, technology, and digital government

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Executive Summary

The COVID crisis strained state, local and federal government agencies as the need for change became a constant and put a spotlight on access to timely data, an innovation mindset, and delivery of digital services to the public. With a consistent demand for data to make decisions, and with a need for nimble response, mayors who had already invested in data and innovation were able to shine during the pandemic. Louisville was one such city, able to quickly respond to changing conditions with decisions based on timely and accurate data.

As an exemplary leader in the use of data and technology, and as a city that has developed a culture of innovation and continuous improvement, Louisville is a case study worth examination by others. This city was one of the initial Bloomberg Philanthropies Innovation Team (iTeam) grantees in 2011, an investment that accelerated and then institutionalized innovation in city hall. The city was also recognized by the Center for Digital Government as their #1 city for the 2022 Government Experience Award.[1]

Far too few cities leverage data, technology and innovation as well as this city does. A 2020 report from Bloomberg Associates reflecting a survey of the leading cities across the globe concluded, "Data-driven decision-making is still a goal and not a common reality. Despite the importance given to data tools, which include advanced data analytics and artificial intelligence (AI), few cities have the right data infrastructure, standards, and approaches to data sharing in place to take full advantage of these tools."[2] Other cities can learn from the successes and challenges in Louisville described in the pages that follow.

A centralized hub for data, technology and innovation

Leadership of this city's innovation, data and technology portfolio is the responsibility of Grace Simrall, Louisville chief of civic innovation and technology (CIT), who joined the city in 2016 from an innovation role in the private sector. Simrall is responsible for technology as well as for data, broadband access, digital government, and for devising breakthrough innovations across city government. This wide-ranging portfolio and the prominent role of innovation is uncommon within local government. She oversees the 80+ person CIT organization with an annual operating budget of $28M. Strategic development of partnerships leverages city staff impact. For example, an alliance with Microsoft in a Future of Work Initiative established Louisville as a regional hub for artificial intelligence (AI), Internet of Things (IoT) and data science in 2019, with a goal of workforce upskilling and reskilling, focused on underrepresented groups. A partnership with the Brookings Institution created a landmark city artificial intelligence (AI) strategy and roadmap for creating a more equitable pathway to well-paying jobs in the data analytics sector.[3]

Simrall's achievements in the role since that time have gained widespread recognition, including being named in 2022 to the federal government's National Advisory Council on Innovation and Entrepreneurship (NACIE) Board of the Economic Development Administration.[4]

Background: an early adopter for data-informed government

Louisville is among the leading cities for innovation and data today, and has been for over a decade. With 630,000 residents this is a city with great history, having been founded in 1778. As of 2003, the Louisville Metro Government became a consolidated city-county incorporating Jefferson County, KY. A total of 5,700+ city employees work across the various departments of Louisville Metro Government.

Among the early adopters of the movement among cities to appoint a Chief Data Officer (CDO), Louisville mayor Greg Fischer appointed Michael Schnuerle as CDO in 2016. One of the motivating factors was to have someone responsible for data governance – as the city rolled out its open data program and built a performance stat program with dedicated data coordinators in each department, it became clear that the city needed a single point of responsibility for setting rules, policy and governance standards for the open data portal and to elevate the data culture of the city. Schnuerle achieved a great deal during his tenure, including taking a leading role in Harvard's Civic Analytics Network. In 2018 Louisville was among the first cities to receive certification by What Works Cities for their use of data and today is one of only two cities to have achieved platinum certification.

Innovation in Louisville: early adoption creates a strong foundation

The origin story for this organizational marriage of innovation, data, and technology is instructive. Louisville was among the first US cities to create a dedicated team with responsibility for innovation. In 2011, they created an Innovation Team (i-team) when they were selected as one of the first Bloomberg Philanthropies innovation delivery teams. The idea was to create small teams with a wide variety of skills to deeply diagnose a problem using data, and then to methodically source innovative ideas to address the problem and then to relentlessly deliver according to their implementation plan.

The strong foundation of data used by the i-team was a great beginning for data, digital and innovation work in Louisville. When the three-year grant ended, the city funded the i-team positions and merged the group into the mayor's Office of Performance Improvement to become the Office of Performance Improvement and Innovation, permanently embedding the innovation function in city government. Simrall attributes the city's commitment to fostering a culture of innovation in no small part to the leadership and vision of the city's top elected official, Mayor Greg Fischer. Such executive sponsorship has been consistently found to be a key driver of success for both innovation and for data efforts.[5]

Strong executive sponsorship creates conditions for success

Greg Fischer was elected Louisville's 50th mayor in 2010, and was sworn in for a third four-year term on January 5, 2019. Mayor Fischer has been a consistent supporter of data, innovation

and performance improvement because he sees tangible value. The Louisville Metro Government calculates a five to one return for every dollar of cost to the government for its innovation, data, analytics, and performance management efforts[6]. Fischer provides critical support to the innovation function, and as Simrall notes, "I have seen colleagues struggle because they don't get buy-in or support from the chief executive. My mayor empowers me and then stays out of the way. He helps give cover when I need it."

The mayor's interest in innovation is so strong that even when budget cuts were needed in 2019, the Innovation Team was protected, taking a much smaller rate of decrease than the rest of city government. This was partly due to the mayor's commitment to continuous improvement and because the team had been able to demonstrate a return on investment, including by attracting outside funding via philanthropy and corporate partners. Further, innovation responsibilities were merged into the technology function into what is now called the Office of Civic Innovation and Technology (CIT). This centralized placement and alignment with technology gives the innovation function a citywide set of relationships and the power to set citywide IT and data standards. The rationale to embed innovation into the technology function was so that the entire IT department would embrace innovation as part of its work. Embedded in such a critical citywide function, the work of the innovation team is now permanent. Even if there is a mayoral transition innovation is here to stay.

A clear vision for innovation powered by data and technology

Public service often means dealing with the most urgent problem or the highest policy priority of the elected leader, which can impede the attention to long term innovation needs. Innovators who achieve the most are those who have a documented strategic plan and a vision and can keep their staff motivated toward the big picture and not get distracted by the crisis of the moment. These documents can help keep an organization focused when day to day distractions arise.

Visionary leaders choose a handful of priorities and relentlessly pursue them. As one data leader put it, "If you don't start with a clear vision of the two to three things you want to accomplish, you'll get distracted on day one by the crisis of the day and by other peoples' priorities." Simrall has been clear about her vision and goals for CIT, she sets strategic direction and empowers staff to execute. She points out that, "A leader has to be focused on the strategic portions. Trust people and don't micromanage. Where we interact is on setting strategic direction of the agency – what initiatives we pursue and what projects we take on. That lets you jump when an opportunity comes along."

Simrall's organization has a clear mission statement, "The Office of Civic Innovation and Technology (CIT) builds data and technology platforms to ready our government for our community's digital future." And they have a vision statement too, an aspirational and clear one, "Our vision is that Louisville Metro is prepared for emerging technologies to ensure our entire community reaches its full potential."

This clarity and precision is evident in Simrall's very goal-focused outlook and attention to her team's mission. For example, while many on her team took an early interest in electric vehicles (EVs), back in 2016 she resisted their spending a lot of energy on what she called an issue for "the 1 Percent." Now with the federal government playing a role in rapidly expanding EVs to mainstream audiences, the team members will finally get to work on this area now that it is about ensuring a wider and more diverse portion of the public benefits equitably.

Defining innovation in Louisville

What is innovation? There is no one definition that fits every organization. One city data officer said, "So many people think innovation is technology. If you redesign a form to make it easier, that is innovation." Most of what we see in the world is incremental innovation. Commercial products marketed as "new and improved" are often almost exactly the same as the previous product, but for some small tweak.

Some innovators like to distinguish between small, incremental, or process improvements and those that are truly breakthrough ideas or approaches. Simrall is one of these, and she aims for her team to achieve breakthrough innovation. In describing how the innovation function (which produces breakthrough innovations) differs from that of performance function (which strives for incremental improvement), Simrall explained that while both functions use data to solve problems, they do so in different ways. She gives the example of fire safety outcomes. The approach from the Performance Improvement team was to train home health workers to check on in-home smoke detectors, and to supply batteries when needed, or to provide a new smoke detector at no-cost if needed. This solution is a sensible, easy solution that has very limited implementation cost. By comparison, the Innovation team looked at the same data and realized that homes most at-risk of fire were in abandoned properties. Co-creating a solution with the public developed a truly creative solution - solar powered, cellularly connected devices designed to detect smoke detector alarms located inside the blighted properties.

"Walking the walk" of innovation

Simrall strives to continuously challenge the status quo because relying on routine processes produces only routine results, and dynamic tension can hasten problem-solving. Clearly "walking the walk" of innovation, Simrall intentionally creates a culture of constant improvement for her team as a way to set the example for what they are trying to help the city do – improve every day, every month, and every year. As she says, "It's so easy to rest on your laurels and coast on successes for the rest of your tenure in local government. But I challenge the team to repeat their best performance over and over again. As they say on the Sopranos, 'You're only as good as your last envelope.' For our team, yesterday's performance is yesterday's news, we're always pushing for more."

Simrall thinks outside her box and challenges others to do the same as well. For example, as a technology leader, she pushes the city IT team to not just consider the vendors who proactively

sell to the city, but also to look at platforms and solutions and technologies from companies that typically only sell to the private sector.

Creating a citywide culture of innovation

Simrall sees the mission of city IT leadership as including educating managers who use technology across city government to be better consumers of technology, and to develop the skills and judgement not be taken in by vendors selling "vaporware," as often happens with government managers who are not technology savvy and end up buying products that don't live up to expectations. This is part of culture change she and her team are driving.

One helpful policy change helps facilitate innovative thinking in technology purchases. The city mandated that any IT purchase made by any agency must have the city's central IT organization assist them with it. One idea that may be unique to Louisville is a Change Advisory Board a team, a group that works with any new project to make sure there is a change management plan in place. The city is managing American Rescue Plan funding through a project management office and will staff a separate office for infrastructure stimulus funds.

COVID response provides a deep immersion in data

In addition to leading technology and innovation, Simrall served as CDO for over a year after the departure of the city's inaugural CDO – and during a time of high profile need for data by the mayor for the COVID-19 response. Staffing the role herself gave her a good sense for how she wanted the organization structured once she was able to pass the baton to the new CDO who took office in late 2021. For example, the importance of mapping COVID data elevated the role of the city's geographic information systems (GIS) lead, a role that became part of the CDO organization, and a role that needed to be filled when the former GIS coordinator Andrew McKinney was tapped for the CDO role. Additional resources have been assigned to the CDO to form the city's first Enterprise Data Team.

Innovation culture accelerated during the pandemic

While the pandemic created stress as city halls closed and essential services had to quickly migrate to digital services, there were some indirect benefits in how disrupted services were reinvented on the fly. The pandemic forced city staff to quickly innovate along multiple simultaneous fronts. As Simrall notes, "There was an immediacy and urgency to the problem solving right as the pandemic hit. Hurtling from one problem to another and trying to solve multiple problems at once was a forcing function – people didn't have time to bemoan the fact they had to solve the problem quickly and not perfectly. We all know it's not going to be perfect."

The pandemic accelerated digital government because the city became its own internal digital services customer. There had been a goal to reduce paper consumption, called "paper free by

’23,” yet the pandemic drove adoption to the point that some agencies that had been resistant to adopting e-routing and e-signature pivoted when city hall shut down. Processes that used to take months, for example onboarding new staff by HR, now takes just hours. As the city became its own customer for digital services, the work accelerated such that now most people don’t want to go back to the way it used to be. Some staff who had previously insisted on paper copies of documents (“We really like printing this out”) are now working on tablets during the city’s stat meetings.

The CIT organization also includes the city’s lead for digital services, which is currently primarily focused on the city’s website. Simrall has a vision of a digital services team in the future that has a broader scope that includes enabling digital government and raising digital literacy. Longer term, digital service delivery will be about bring government service delivery to your home, via Alexa or other home Bluetooth devices, and Louisville is working to build applets for remote access to city services.

In Louisville, digital service provision and digital divide work are separate. Digital inclusion is a key piece of the work the Innovation Team has taken on and will continue to do, now in partnership with the IT team. The civic technology lead for the city is now the city’s “broadband czar,” responsible for pursuing all the new broadband work to build out connectivity across the city, particularly in underserved areas.

Teamwork and relationships matter

Team spirit both internal to the innovation team and externally across departments is a key part of success in Louisville. Reflecting on the structure of her organization and the collaboration across functions of data, innovation and digital, Simrall notes, “When they don’t report to the same person, then at least the key individuals leading the teams should have a strong relationship. They should be looking at each other as collaborators.” And, importantly they should learn from each other. As Simrall notes, “Don’t repeat mistakes, adopt and adapt what you’ve done that’s useful. That’s incredibly appealing to people who are drawn to the work to problem solve and want to make a difference.”

Teams are the foundation of innovation, and provide what Harvard Business School scholar Linda Hill calls the “collective genius” necessary for innovation. Yet, as a society, we have mythologized the innovator as a lone individual toiling away by himself until reaching the breakthrough, perhaps imagining Archimedes in his bathtub, Darwin observing nature, or Einstein lost in thought. But the reality is that teams, not individuals, innovate. In his book *Where Good Ideas Come From: The Natural History of Innovation*, Steven Johnson catalogs over 200 innovations spanning hundreds of years and concludes that it is seldom the lone genius and much more often a team that creates breakthrough innovations. Further, he finds that over time this trend toward teams and away from solo inventors has increased.

Reflecting on the success the innovation team has had in Louisville, co-creating innovation rather than imposing ideas from the outside, Simrall notes that they have consistently been

able to invest time in building relationships of trust in departments they work with across city government. The advice she has for others is, "Be cross-functional in nature. Part of why we have such success is that people in the agencies trust us, we're the trusted partner."

Her team builds trust by co-creating solutions that are about solving important problems for the public and for city staff. They don't lead with answers but spend time exploring questions. Like the best innovators, they start with a clear definition of the problem before getting to the solution stage. Jim Anderson, head of Government Innovation at Bloomberg Philanthropies, echoes this sentiment, "Public-service transformation never begins with the technology. It starts with a clear-eyed, people-centered understanding of the problem at hand — and working outward from there."[7]

Innovation takes time, and often has false starts

Innovation is often depicted as a light bulb, instantly switching from darkness to light. But contrary to this mythology of innovation being about an instant moment of insight, innovation usually takes time. For example, it took 20 years to create the first animation movie at Pixar. When first presented with the idea for the iPhone, Steve Jobs reportedly said, "That is the dumbest idea I ever heard."[8] It took six months for his engineers to convince him to get on board with this crazy idea.

Innovation also typically happens after a few false starts or dead ends - many major breakthroughs faced obstacles or setbacks along the way. Struggle and failure are a natural part of the process of succeeding. Michael Jordan missed nearly 1,500 free throws in his career, but he's still one of the greatest athletes and didn't let missed shots stop him from staying in the game. Julia Child famously dropped a roast chicken on the floor during her live television show and just picked it up and gamely kept on with her cooking and teaching. We can't all be as talented as Michael Jordan or Julia Child, but like them, we can persist in the face of setbacks.

In his book *Imagine*, Jonah Lehrer tells the story of Arthur Fry, an engineer at 3M who saw a 1974 presentation by a colleague on a failed R&D project for an adhesive that didn't stick well. After the presentation, he put the idea out of his mind, because "What good, after all is a glue that doesn't stick?[9]" Later, frustrated that the paper bookmarks in his choir hymnal sometimes fell out, he used the adhesive that didn't stick well as a bookmark. He gave some to colleagues to try. They never asked for more bookmarks, because they just moved the bookmark from one book to another. It was a failure as a bookmark. Weeks later, about to write a memo to his boss about a specific paragraph in a report, he put a square of his adhesive paper on the report with his comment. The boss wrote back, on another sticky square. And thus the sticky note was born – a child of repeated failure and a lot of creativity and patience.

One of the city of Louisville's more well-known innovations, AIR Louisville like so many other great innovations took a while and hit a few roadblocks along the way. This innovation was so successful that it helped participants with asthma reduce their need for rescue inhaler use by

82 percent and double their symptom-free days. The program used geotagged asthma inhalers to capture data on where and when air quality triggered the need for medicine and then devised ways to improve the air quality in those locations. This groundbreaking success only came about due to persistence after a few dead ends.

The original plan was to leverage data from the half dozen existing city air quality monitoring stations. Unfortunately, it turned out that each measured different air chemistry quality issues – and none of them measured the health events that individuals suffered because of poor air quality. Ted Smith, the city's first Innovation Team director and the leader of that project had an idea that air quality was not a binary outcome of good or bad, but rather that there were pockets of air quality at various levels across the city.

So, he began experimenting with a variety of approaches and hit a few stalemates. Undaunted, Smith iterated and tried a new approach -- he recruited residents to ask them how frequently they were using their asthma inhaler using passive data collection – a GPS monitor attached to the inhaler recorded date and time and GPS coordinates each time the asthma inhalers were activated. With philanthropic funding to scale from a small pilot to citywide, Smith was able to recruit enough of the population (1,400+ participants) to get granular level data across the city. With this data the team could map hotspots of poor air quality and could take action to change these microclimates. For example, one of the hotspots was near the airport, and that area now has 10,000 trees and bushes planted to help clean the air.

Success came after repeatedly trying until the right solution was found, and not giving up at the various roadblocks. Reflecting on this, Simrall notes, "If we pretend we don't fail, we'll only make things worse."

"Safety to fail" supports innovation culture

Creating a culture where there is openness to trying new things is essential and staff need to feel that they can make mistakes without losing their jobs. In his book *Think Again*, Adam Grant points out that organizations that are successful in learning, adapting and changing do so by creating a culture of psychological safety and accountability. Organizations with psychological safety accelerate innovation by allowing roadblocks to be interruptions or detours rather than dead ends. A culture of psychological safety enables staff to see their mistakes as opportunities to learn, rather than seeing mistakes as threats to their careers. They are willing to speak their mind in meetings and to take the kinds of risks that mean they might fail, instead of keeping their ideas to themselves and fearing taking any action that involves experimentation. These conditions create trust rather than fear among team members.

Simrall has created this ethos in her team by talking openly about failure. She also points out the importance of transparency about when things don't work out as planned and the value of learning from those bumps in the road. "I'm always talking about our failures. They're normal. When it was totally avoidable we try to reflect on why we didn't think about it and mitigate it and what we can learn from the experience."

Conclusion

When it comes to innovation and new ideas in government, some excellent advice comes from a time of challenge a century ago, when then-New York Governor Franklin Delano Roosevelt, laying out his campaign ideas for the New Deal said, "The country needs, and unless I mistake its temper, the country demands bold, persistent experimentation. It is common sense to take a method and try it. If it fails, admit it frankly and try another. But above all, try something."[10]

At this moment, government managers and leaders have the unique opportunity to "try something" and in so doing, to advance innovation for generations, with the stimulus funding as their instigator to craft a future government that is responsive and customer-centric, digital and data driven and thrives on innovation. The unprecedented level of federal investment coming to state and local government via the stimulus can be a once-in-a-century opportunity to innovate, and to drive transformational change that breaks apart old methods of delivering service to the public and replaces them with new approaches that are modern, customer-centric, and efficient. In fact, advancing "Effective Service Delivery" is specifically called out as an allowable use of stimulus funding, along with "capacity building resources to support using data and evidence[11]."

Successfully leveraged, this federal investment can create new cultures of government innovation that can sustain for generations to come. In charting a bold path forward, other cities can look to Louisville for ideas and inspiration.

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