



Reinventing Civic Services With Intelligent Automation



The expectations have changed for government services.

A now digital savvy populace expects the same real-time convenience and personalized user experiences as those enjoyed in their daily transactions with customer friendly consumer brands.

Constrained by system silos (both data and operationally), tight budgets, entrenched workflows, and oft conflicting demands to be more secure and yet more transparent, today’s government agencies are racing to modernize in both process and infrastructure. For forward thinking agencies, the roadmap is ambitious but daunting:

- Convenient and intuitive citizen and business services delivered across all digital devices
- Seamless and immediate agency-wide access to actionable data with insightful visualizations
- Modern, mature, secure digital tools to service core agency mandates and revenue streams

- Intelligent automation facilitating streamlined operational workflows and budget savings
- Substantial and sustainable economic growth fueled by business & citizen centric customer experiences designed to reduce red tape, improve civic engagement and increase operational efficiencies.

As citizen demands grow for modernized government services, political will and budget priorities are similarly aligning to drive innovation forward at a rapid pace. While this is undoubtedly good news for agencies striving to modernize, the other side of the coin is accompanying expectations for ambitious deadlines, rapid return on technology investments, and an emergent need for elegant new solutions to the long-entrenched problems of siloed data, legacy systems and change resistant workforces.

The good news is several forward-thinking jurisdictions have boldly stepped forward onto a new path to government service innovation. In doing so, their noteworthy achievements can now serve as a roadmap to emulate for those jurisdictions similarly invested in driving revenue growth through responsive governance.

Digital Cities & Counties

Philadelphia, Pennsylvania
Albuquerque, New Mexico
Douglas County, Colorado

Three regionally and culturally distinct communities that nevertheless share common ground as three of the most celebrated 'Digital Cities & Counties' in America.

Philadelphia, Pennsylvania

- 5 consecutive top five finishes as a national Digital Cities Survey winner, including the No. 2 ranking in both 2016 and 2013 for cities with a population of 500,000 or more.
- A dedicated Office of Open Data and Digital Transformation tasked with fostering information transparency and citizen centered services, fueled by Philadelphia's \$124 million capital funds investment in infrastructure improvement including the replacement of legacy systems.
- An e-procurement system which has increased the number of bidders by 31% while reducing processing time by 15%.
- One of five U.S. cities awarded a Smart Cities Council Readiness Challenge Grant in 2017.
- The successful launch of Project eCLIPSE (Electronic Commercial Licensing, Inspection and Permit Services Enterprise), a new database system that offers nearly every L&I service online, including: permitting, plan review, license application, and renewal and payment options.



"We have been building a coalition of city, community, business and educational institutions. They are all enthused and ready to help with smart city projects focused on the built environment, telecommunications and basic public services. We know the technology behind us is important for our citizens and businesses alike, and the expertise that the Smart Cities Council brings will help us realize those opportunities."

Mayor Jim Kenney, Philadelphia, PA

Albuquerque, New Mexico

- 7 consecutive top ten finishes as a national Digital Cities Survey winner, including the No. 2 ranking in 2017 for cities with a population of 500,000 or more.
- A dedicated Department of Technology and Innovation to facilitate the agency's 'GAAS' platform of Government-As-A-Service.
- Commitment to facilitate every citizen service online and via mobile with 50 online services and over 30 mobile apps deployed.
- ABQ Data, an open data initiative launched in partnership with Bloomberg's 'What Works Cities' to foster paperless, data-driven workflows across all agency systems.
- Implementation of POSSE LMS, a leading edge Land Management and Licensing System, designed to automate internal workflows and citizen interactions across a breadth of Building Safety, Urban Design & Development, Code Enforcement, AGIS, Development Review, Special Event Permitting and Business Registration services.



"We are committed to being smart in using technology and creating conditions for innovation. Internally, we were clear about improving obsolete business systems that were creating a drag on service delivery, and we bolstered a culture centered on improving connections between residents and City Hall. Externally, we demonstrated to residents that digital advancement was not simply about pursuing the latest fad, but about improving their quality of life."

Richard Berry, Former Mayor, Albuquerque
Peter Ambs, Former CIO, Albuquerque

Douglas County, Colorado

- 7 top five finishes as a national Digital Counties Survey winner, including the No. 1 ranking in 2017 for counties with a population between 250,000-499,999.
- Awarded the prestigious Center for Digital Government's *Government Experience Award* for innovation in 2018 for the County Assessor's website & online services to improve the citizen experience through improved data transparency.
- Created a county-wide training program to instill Lean/Agile thinking in every department, team and employee. Implementation of ITIL/ITSM best practices as a result of this training have resulted in several dozen process improvement and cost saving measures.
- Launched the Douglas County Innovation League, created a roadwork notification application, supported county-level open data sharing, and collaborated with the Auckland University of Technology on an artificial intelligence pilot.
- Implemented the POSSE enterprise platform, winner of 18 International Awards including the Smithsonian Institution's collection of ground-breaking software, to streamline data and internal workflows across Building, Engineering, and Planning agencies.



"POSSE affords me the ability to be efficient. Whatever we need, POSSE has been able to provide as far as process management. It's such a solid, configurable product and they are so open to inventing new things with us."

Terence Quinn
Community Development Director
Douglas County, CO



Revitalizing Governance with Data Driven Customer Experiences

You'd be hard pressed to find three more distinctly different communities than Philadelphia, Albuquerque, and Douglas County.

Yet, despite the great distances that separate them geographically and the broad diversity of the governance innovations they've achieved, all three communities share a common ground in their approach to revitalizing citizen services that starts with their approach to data, intelligent automation and a philosophy towards core infrastructure investment that is closely aligned to a clearly articulated and long-term innovation vision.



Accessible & Actionable Data

For a prospective award-winning 'Digital City or County,' it starts with a commitment to breaking down the silos across internal agencies to create accessible and actionable data for all stakeholders – both internal and external. Doing so ensures the correct framework for data provision across the full spectrum of potential civic services, and true data transparency for citizens. Of equal importance, it empowers the entirety of an organization to embrace data-driven decision making with subsequent workflows designed to optimize automated processes, rather than servicing inefficient and poorly integrated manual processes.

In realizing the endgame of 'big data,' pay close attention to the commonalities of our innovation trio:

1. Each created and emboldened agency-wide 'innovation initiatives' designed to encourage data sharing and discourage turf 'protection.' Sharing is properly incentivized through a broader mandate to facilitate improvements in service delivery outcomes and citizen user experiences.
2. By creating 'innovation task forces' to pioneer data-driven citizen services, open data projects quickly evolved from theoretical exercises to practical applications with accessible data becoming the raw fuel that fires invention.
3. With data broadly accessible across all departments, each of our innovative jurisdictions invested in a core land management, licensing and permitting solution to facilitate a robust and flexible data warehouse and reporting platform, providing immediate information access to empower organization-wide data openness, transparency and decision processes.

Creating improved data transparency across agencies can also have a substantial impact on the bottom line, with rapid return on investment making a strong business case for further innovation investment.

In 2018, the City of Philadelphia began enforcement efforts to increase local non-tax collections through an L&I billing project. When L&I performs work on a property, they bill the owner for the service. If the bill is left unpaid, a lien may be entered against the property and it is the Department of Revenue's responsibility to collect the obligation. With this Data Warehouse, the City is identifying property owners who have outstanding L&I obligations and billing them directly. As a result, the City has generated \$12 million in recovered tax revenues.

The benefit of this connected system is that, "because our departments work so closely together, we need a system that allows us to share data quickly and easily. Using POSSE, separate departments can simultaneously share and review a document, rather than waiting for a hard copy to make its way between multiple people reviewing it individually."

Assistant Planning Director Steve Koster - Douglas County, Colorado



Intelligent Automation

While improved civic engagement and sustainable revenue growth are the core drivers that spur smart cities to innovate digital service experiences, it is important to recognize another focus point shared by Philadelphia, Albuquerque and Douglas County. In each jurisdiction, innovation initiatives focused on intelligent automation were leveraged to meet the needs of both external and internal stakeholders creating legitimate win/win scenarios across the entirety of the organization.

Freed from legacy systems yielding poor data integration and unwieldy processes, each of these award-winning agencies designed automation empowered workflows to realize substantial process efficiencies for front-line staff while also delivering elegant user experiences for citizens.

To better serve the needs of both citizens and colleagues alike, each of these digital communities followed a best practice approach in their adoption and delivery of automation technology:

1. To maximize both citizen and organizational reach, a leading-edge enterprise scale land management, permitting, and licensing solution (POSSE LMS) was identified as the optimal platform to deliver a broad range of automated workflows for both internal and external users.
2. For each agency, their chosen solution featured a highly configurable business rules and workflow management platform, capable of supporting a robust set of land management, licensing & permitting processes. This 'best of both worlds' approach provided the versatility to imagine and design new workflows, while also leveraging the ability of existing deep feature product modules to increase project 'speed to market' to deliver new services on time and on budget.
3. With a solid foundation of big data and intelligent automation now firmly established, our trio of agency innovators were each quick to embrace a new delivery model predicated on optimization of automated workflows to achieve both significant gains in response times and quality of outcomes.

In this new model, online self-service modules empower builders to expedite permit applications, inspection requests & schedules, and review inspection results on a timely basis. An accelerated review process moves permits through the workflow: tracking and recording all data at each step, with email notifications sent based on business process triggers such as impending inspection and license expiration dates.

"Project eCLIPSE will transform the way residents, business owners and developers do business with the City of Philadelphia. It will eliminate redundancies and the need for in-person paperwork and payments while emphasizing accessibility and convenience for citizens. Over time, Project eCLIPSE will improve public safety, government efficiency and delinquent tax collections, reduce vacant and blighted properties across the city and help attract new businesses and development by easing the application, permit and payment processes."

Former Mayor Michael A. Nutter
Philadelphia, Pennsylvania



Citizen Services

Given the 'hands on' nature of internal process work, it can often be easier for agencies to visualize impactful improvements to such workflows. However, another trait that defines Philadelphia, Albuquerque and Douglas County as award worthy innovators is the ability of each agency to think 'outside the box' in their reinvention of external facing customer service processes and touchpoints. Each of these digital communities emphasized the citizen's needs as paramount in their evaluation of emerging technologies, with their final objective nothing less than the delivery of a customer service experience capable of accommodating the most demanding modern digital consumer.

In realizing this ambitious goal, 3 common qualities emerged across these innovative agencies:

Efficient

Cognizant of the reality that the 21st century customer expects speedy and seamless service, each agency utilized workflow optimization technologies to deliver automation processes that guide citizens towards quick resolutions with positive outcomes. Clean and cleverly designed web interfaces provide users with the ability to access services on their chosen devices on a 24/7 basis. Data-driven workflows prompt citizens when key actions are required, while automated schedule reminders help users to stay informed on key dates and deliveries thus managing service expectations.

Customer Led

All essential services throughout the planning, permitting, licensing, and inspection process are facilitated through interactive civic portals. Carefully designed to guide even inexperienced web users in their completion of common tasks, these data-driven websites can also scale to the needs of more demanding and frequent users providing opportunities to personalize profiles, archive key information, template repeated tasks, and schedule reminders. For busy land developers and builders for whom time

is money, such tools provide an invaluable resource to expedite the process from initial application through to final approval.

Collaborative

In fully committing to data transparency and citizen led service models, our digital communities are able to break down the silos to empower innovation platforms that deliver true collaboration with citizens and between colleagues. In Philadelphia, interactive ePlans modules afford parallel reviews and real-time revision with multiple stakeholders-both internal and external. In Albuquerque, data-driven mobile apps equip field workers with the ability to both access and share time sensitive intel.

"Our Department of Technology and Innovation consistently lives up to its name. Our goal is to turn government inside out so that residents can easily access city government, and city government can be more responsive."

Mayor Tim Keller,
Albuquerque, New Mexico

'Automation of the Agency'

While the long track record of award winning innovations from Douglas County, Albuquerque, and Philadelphia is suitably impressive, it is the way in which all three of these innovation initiatives have been conceived to enhance the service experience for every conceivable stakeholder (both externally and internally) that truly sets these projects apart as examples of transformative digital governance.

The Importance of Creating a Fast-Track for Land & Property Developers

For land and property developers, development approvals in many parts of the country have gone from taking 2-3 months to as long as 10 or 11 months in some of the fastest growing cities in the US ([Source](#)). Costs from such delays are doubly punitive for developers: impacting them both directly via increased capital, carrying and interest costs, and indirectly via increased time and labor spent managing complex and manually intensive processes that can vary drastically between jurisdictions.

As a number of [recent studies](#) confirm, expediting the land development and review process not only speeds the time to market for entrepreneurial businesses that play a vital role in the economic growth engine, but an expedited development process also fundamentally improves the availability of affordable local housing. With affordable housing projects disproportionately impacted by escalating costs associated with regulatory delays (due to the smaller profit margins of such projects), a protracted development and review cycle inevitably results in fewer affordable housing units being built ([Source](#)).

Faced with this challenge, shorter turnaround times for development approvals have now become a key metric for consideration by government leaders keen to address the nationwide issue of affordable housing stocks in their communities.

Automated Workflows + Public Portals = Quicker & Easier Development Approvals

For innovative jurisdictions like Douglas County, Albuquerque, and Philadelphia, reducing the turnaround times for development approvals is accomplished through intelligent automation platforms that streamline internal workflows across multiple internal agencies while simultaneously interfacing with developers and citizens in real-time through self-service online portals.

In the Douglas County permitting system for instance, developers are notified via their preferred digital device when they need to submit paperwork or information. Through the portal, they can also access up-to-date status reports to monitor pending decisions which helps them to more accurately schedule pertinent development tasks and milestones.

A formerly manually intensive process that required printing out blueprints, making duplicate copies, signing and sealing documents, pulling permits, and requesting inspections has now been replaced by a transparent and accessible digital workflow where all parties have ready access to the information required to submit plans and applications, communicate updates, notify key stakeholders, and expedite review and approval timelines.

Additionally, in striving to provide open data transparency in the execution of land management workflows, these jurisdictions provide citizens interested in a dialogue on development projects with interactive maps confirming pending projects in neighborhoods of interest.

A Win for 'All Stakeholders'

While undoubtedly a boon to affordable housing advocates, entrepreneurial developers, and engaged citizens alike, the 'automation of the agency' is also proving a big win for government staff.

Staff morale and retention are both positively influenced as a result of the reduction and/or outright elimination of time-consuming, redundant, and manually intensive processes. Relationships once fraught with mutual stress and frustration over missed deadlines and inherent inefficiencies improve, as both review staff and developers embrace collaborative digital workflows that greatly improve communication, transparency and deadline expectations for all involved.

In addition to the direct correlation shown between reduction in review and approval times and a corresponding growth in license and permit revenues, recent studies are also demonstrating the significant impacts of an expedited land development and review process on property tax revenues. In 2016, an economic impact analysis commissioned by the Montgomery County (Maryland) Department of Permitting Services (DPS) indicated that adding a single year to the review process can reduce the value of that property by an average of 20% thus lowering the property tax base ([Source](#)). Or, in looking at it from a positive perspective, shortening the time from concept to occupancy by one year could save a developer as much as 20% of the project cost increasing the viability for a range of affordable housing projects.

In addition to new development projects, streamlined land management workflows such as those facilitated by POSSE LMS help to return foreclosed properties to productive use more quickly, as well as enabling developers to more rapidly adjust to changing market conditions rather than abandoning plans altogether.

Key Facets of an Innovation Empowering Platform



Philadelphia, Albuquerque, and Douglas County, CO, are each acknowledged as progressive digital communities achieving innovation acclaim and economic growth through their modern approach to digital governance services.

Despite their diverse scope of innovations, a thorough assessment of these respective initiatives reveals common factors providing a clear roadmap to emulate for those agencies similarly invested in driving revenue growth through web responsive governance.

Chief among these:

- A commitment to eliminate agency silos to empower true data accessibility & transparency.
- Adoption of intelligent automation to streamline workflows for internal & external stakeholders.
- A clear focus to deliver citizen services consistent with the highest customer service standards.

Given the vital role that a robust Land Management, Permitting & Licensing system plays in each of these success stories in making data accessible, streamlining business processes, delivering citizen services, and empowering economic growth, let's conclude our study with a brief summary of the core technologies integral to these innovation empowering platforms:

ePlanning

An electronic planning workflow, ePlans transforms the planning & approval process from a traditionally paper intensive workflow into a digitally collaborative and transparent process. In linking together all the information involved in large development projects; planners, agencies, and citizens alike can access and act upon all information quickly and easily, facilitating streamlined workflows for all involved:

For Developers & Planners, the ability to submit plans and permit applications, make payments or schedule inspections via a citizen web portal, and receive updates in real-time on their device of choice means...

- Less time spent waiting in line.
- More accurate plan submissions with less errors and delays.
- Faster turnarounds on plan & permit approvals facilitating improved scheduling and builder efficiency.
- Better management of time and resources with enhanced project tracking leading to fewer reviews and faster approvals.

For Citizens, the accessibility of a web-based citizen portal means...

Convenient engagement in the community development process with timely opportunities to review project plans, provide input, and share feedback.

For Agencies, the creation of an exclusively digital and fully collaborative workflow means...

- Faster approvals as a result of parallel review of planning documents across agencies, along with automated workflows triggering key deadlines & decision workflows.
- Reduction in labor intensive tasks and an environmentally friendly elimination of paper throughout the planning and permitting processes.
- The creation of more livable communities with automation guided inspection and enforcement of planning codes resulting in improved adherence to community plans.
- Increased stimulus of economic growth and community development with both developers and agencies empowered to quickly progress development projects to fruition.





GIS Enabled Open Data

By integrating Open Data with GIS (Geographic Information Systems), end users both internal and external can accomplish a diverse array of tasks more quickly and efficiently:

- Mapping zoning and planning data together equips developers to see what type of businesses can be located where, alongside available properties/parcels and pertinent development requirements. Think of it as ‘one stop shopping’ for effective development planning.
- Open data tied to intelligent automation can facilitate a more complete picture of the citizen experience. For instance, citizens potentially impacted by a planning application can be automatically notified of pertinent activity in their neighborhood, while license or permit applicants with delinquent tax owing can be more easily flagged for revenue recapture through automated crosschecks.
- Many jurisdictions choose to map all confirmed construction projects from approved permits right down to a deck extension or kitchen remodel! Providing this level of data availability reduces operational overheads and time spent responding to citizen enquiries and complaints.
- GIS data is a massive boon to inspectors and code enforcement officers in the field. ‘Big data’ enabled mobile devices equip field workers to easily manage schedules, plan inspection routes, access information (for properties, licensees, pertinent codes & legislation, etc.), and upload inspection reports or code violations.

A Workflow Management Engine Supporting a COTS Solution

A common factor in the award-winning approaches pursued by Albuquerque, Douglas County, and Philadelphia was the forward-thinking decision by each to build technology innovations on the foundation of a highly configurable workflow management platform capable of supporting a feature rich land management, licensing and permitting solution. This approach creates a ‘best of both worlds’ scenario for agencies needing a customizable solution specific to their own operational processes and regulatory standards, in addition to the fixed cost certainty afforded by a deep feature product module with elegant user experiences and robust reporting capabilities.

Key advantages of this approach:

- A highly configurable workflow management platform empowers agencies to easily design and deliver operational best practices to reclaim resource capacity and streamline internal processes.
- Creation of a single consolidated database provides a reliable, accurate source for all decision and operational information for Planning, Permitting, Licensing, Land Management and Compliance services—
- including a history of all interactions (applications, documents, pictures, plans, status, etc.) readily accessible on a 24/7 basis.
- A legacy system replacement plan ensures ongoing service continuity and accurate data conversion to minimize disruption while migrating users to a modern, consolidated and accessible web based solution with the required flexibility for current and future requirements.

Cloud Delivery

The trend is now established. Agencies of all sizes are moving to the cloud to achieve the scalability, security and full feature functionality of a legitimate enterprise solution without the often-exorbitant cost and maintenance required to support an internalized infrastructure investment.

With a cloud-based SaaS (Software-as-a-Service) solution, government agencies are increasingly leveraging the myriad benefits of a turnkey approach to software delivery, as one that prioritizes the bulk of technology expenditures on innovation and services rather than maintenance and security:

- Agencies can count on 24/7 system and support access, with expertise provided by product experts fluent in all aspects of the platform, code base and future roadmap.
- Security standards and compliance requirements can be maintained by the solution provider, greatly reducing operational efforts to stay abreast of ever escalating requirements in this area.
- Going to the cloud empowers jurisdictions to cost effectively scale services exponentially without onerous investments and efforts in hardware, implementation, integration and support.
- Unlike an overly customized technology platform, a cloud solution provides a more predictable and achievable product roadmap and upgrade path, enabling leaders to better dovetail organizational strategic initiatives with accompanying technology refinements.
- A cloud solution better equips the potential adoption of new and emerging technologies in your overall platform portfolio including mobile apps, AI, and the Internet of Things.
- A cloud delivery model lessens the inherent risks associated with internal staff comprising the core implementation & support resource for solutions often envisioned as generational platforms.



Conclusion

Citizens are speaking and leaders are listening. The mandate for modernization in citizen services has arrived.

That is the good news. The even better news is that alongside a revitalized political commitment to improved citizen engagement, there also exists proven paths to emulate for those forward-thinking jurisdictions primed to launch their own innovation initiatives. In every corner of the Union, from Pennsylvania to New Mexico to Colorado, agencies are blazing their own trails to success with data accessibility as the spark, intelligent automation as the fuel, and responsive customer service as the fire that ignites rapid revenue growth for further innovation funding.

In contrast to the private sector where competitive advantages are closely guarded secrets, one of the primary benefits of the public sector is successes are shared and once shared, can be easily emulated.

There's a lot to be learned from celebrated 'Digital Cities & Counties' like Philadelphia, Douglas County, and Albuquerque. The questions that come to mind are: what can you learn from their approaches, and how can you make these innovations even better for your community?

White Paper By:

Computronix provides state and local government agencies with transformative enterprise software solutions for land management, alcoholic beverage control and enterprise licensing. Powered by POSSE, an award-winning platform included in the Smithsonian Institution's collection of ground-breaking software, this wholly integrated suite of enterprise products empowers public sector agencies to automate critical processes and streamline business workflows for improved efficiency, accessibility and civic engagement.



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