City of Indianapolis
Open Data White Paper

Created by
Matthew Kirby
Mean City Consulting

Contents

Foreword

The rise of Indy's technology sector as a formidable economic force is well documented. Large tech companies like Salesforce, Interactive Intelligence and Angie's List employ thousands of Hoosiers and have helped spawn dozens of new startups. An almost daily drumbeat of positive press continues to elevate the city's reputation as a hot bed for technology-driven entrepreneurism. Innovative groups like Verge, trendy co-working spaces like the Speak Easy and well-funded initiatives like TechPoint continuously feed the tech sector's momentum and keep the ecosystem thriving.

What's been less documented in recent years is Indy's growing interest in a relatively new offshoot of the technology sector - civic tech. Civic tech can be characterized as the intersection of technology and the public sector and, in a broad sense, is any technology that is used to make government more accessible, effective and efficient. Encompassing everything from developing applications that communicate with the public to improving technology infrastructure, civic tech carries with it the potential to help government spend taxpayer dollars more wisely, modernize constituent services, and foster an environment that creates opportunities for new startups.

The emergence of Indy's civic tech movement has been prolific. In 2013, when Code for America held its first National Day of Civic Hacking[1], an event intended to bridge the gap between the public sector and the technology community, there wasn't a city in Central Indiana that participated. No organization existed locally to spearhead the effort. Now, just two years later, consider this:

- The city has hosted two consecutive Indy Civic Hack Days[2] that each drew large, energetic crowds of developers to solve public sector challenges.
- Local teams participated in and won the Indiana vs. Texas Hack[3], the first in what appears to be a recurring series of competitions with other states.
- A local Code for America affiliate, The Open Indy Brigade[4], has formed to serve as an ongoing conduit for Indy's civic tech movement and already boasts over 120 members.

Perhaps it should come as no surprise the extent to which Indy has embraced civic tech. The city has most of the pieces necessary for a vibrant civic tech ecosystem – a deep and talented tech workforce, thriving co-working spaces, supportive elected officials, engaged private sector partners and a proud history of bold public-private partnerships.

What we lack, unfortunately, is the very foundation for civic tech - open data.

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[1] http://hackforchange.org/
[2] http://www.indycivichack.com/
[3] https://www.hackerleague.org/hackathons/texas-vs-indiana-challenge
[4] http://www.indycivichack.com/brigade

If civic tech is a rocket ship with the potential to fundamentally change how government operates, open data is most certainly the fuel. Without a strong flow of quality public information and vigorous dialogue between the public sector and the tech community, the applications of the future simply won't get built. The antiquated websites and data management systems of public agencies won't be properly maintained and upgraded. New solutions won't be created and new startups won't be born.

For all the progress that has been made around civic tech in recent years, the City of Indianapolis still lacks the policy and portal that can make the free flow of open data possible. Most county and city level agencies still operate under a decades-old 'pay-for-information' model that requires a trip to the City-County Building to receive documentation in paper form. What scant information that is provided online is located across multiple sites, often several years old and most likely in a format that is not easy to make useful.

Changing the technology culture within city government might sound like a daunting task. Indy needs a fresh set of policies that acknowledge public data and how it can be used is evolving. Data from a multitude of agencies currently scattered across dozens of disparate sites in dozens of different formats must be standardized and housed in one centralized portal. Sophisticated security measures must be put into place to ensure personally identifiable information is kept safe. New and existing boards and associations must assume responsibility for oversight.

But the public technology and data challenges of the next century are here to stay, and events like Indy Civic Hack Day and groups like the Open Indy Brigade demonstrate that the tech community is ready to help address them. Now it is imperative for the City of Indianapolis to join the conversation. If Indy really wants to use public sector information to make government more efficient, improve services and fuel a new startup ecosystem, it must first get serious about data.

An open data initiative that clearly establishes goals, outlines specific guidelines for data format, quality and delivery and assigns roles to execute the work is necessary to fully realize the potential of the city's civic tech community. The purpose of this document is to provide the framework for an initiative that promotes civic engagement, infuses public agencies with stronger, more relevant tools and better positions the region to compete for the talent and companies that will grow the new economy.

The Rise of Civic Tech

While the idea of using technology and data to drive better government is hardly a new concept, the modern civic tech movement traces its roots back to 2009. Much of the same community that utilized technology so effectively to transform Presidential politics the previous year, propelling Barack Obama to victory, was now setting its sights on government.

On his first day in office, President Obama signed a memorandum instructing federal departments to put information online[5]. Launching four months later was Data.gov[6], the portal for federal open data. In September of that year, Code for America, a national non-profit dedicated to bridging the gap between the tech sector and government, was founded[7]. Three months later the White House launched the Open Government Directive[8], setting specific formats for data and timelines for execution. In twelve short months, a fundamental change in the relationship between government and technology had been forged.

As this movement towards open data was occurring at the federal level, cities across the country were also embracing the call for better access to public information. Cities as large as New York and as small as Bloomington, Illinois, took the federal government's lead and began offering public information in open format[9]. In the six years since Data.gov launched, nearly 100 US cities have established open data policies of their own, created portals and opened data sets ranging from restaurant inspections to procurement contracts[10].
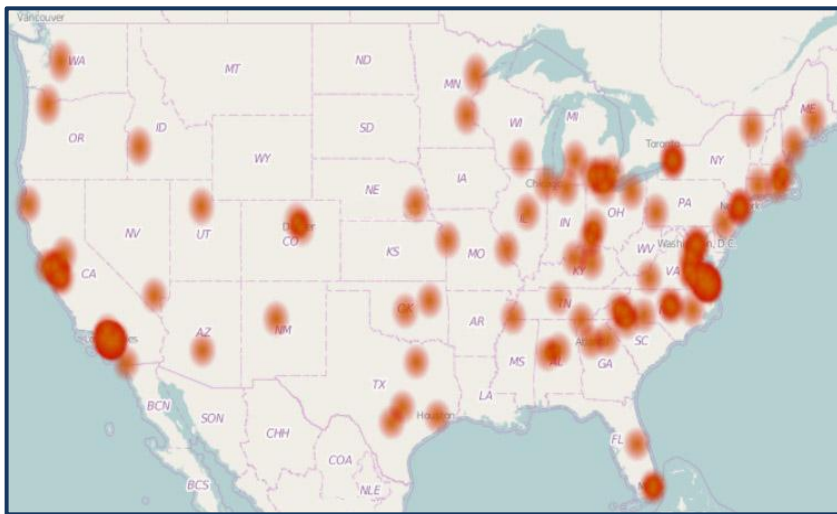

Figure 1: Open data policies and portals

And cities weren't just stopping at websites full of data sets. Understanding that a cultural change was necessary within municipal government, cities across the country began creating 'offices of innovation' and appointing Chief Innovation Officers and/or Chief Data Officers. While often responsible for traditional Chief Information Officer duties, chief innovation officers are increasingly charged with identifying problems and forging solutions that have the potential to transform government. Often tied to a region's economic development efforts, these offices have in recent years sprung up in Chicago, Philadelphia, New York, Louisville, Nashville and South Bend[11].

This leap forward in data availability and quality was soon being recognized for its potential to help launch new businesses. In 2012, Code for America and Points of Light created the country's first civic tech accelerator programs, nationwide efforts to bolster startups who were putting this newly available public data to commercial use. In 2013 and 2014, Philadelphia, San Francisco, Washington

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[5] https://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_fy2009/m09-12.pdf
[6] http://www.data.gov/
[7] http://www.codeforamerica.org/
[8] https://www.whitehouse.gov/open/documents/open-government-directive
[9] https://sunlightfoundation.com/policy/opendatamap/
[10] http://us-city.census.okfn.org/
[11] http://www.govtech.com/local/Whos-Making-Innovation-Official.html

DC, New York City, Los Angeles and Chicago followed with accelerators or innovation labs fostering local civic tech startups.

Keeping pace with the innovation now taking place at the municipal level, the federal open data movement took a significant step forward in May 2013 when the President signed an executive order[12] making federal data machine-readable by default. The White House also rolled out Project Open Data[13], an online public repository for communities across the country to access new data tools, discuss best practices and even share code.

The embrace of open data at the federal level and the explosion of policies and portals from coast to coast should give the City of Indianapolis an indication of the popularity and staying power of this new resource. Now it is important to understand what this movement means for local government.

Understanding Open Data's Potential

Despite its proliferation nationally, open data within local government remains misunderstood in its intent and underestimated in its potential. While case studies on this relatively new movement are somewhat limited, it is imperative that elected officials and members of the tech community alike understand real world scenarios where open data has been used to improve government in some shape or form. At its core, open data can make government more efficient and effective, improve the quality of constituent services, promote a vibrant startup ecosystem, and ultimately help the region attract and retain talent.

Making Government more Efficient and Effective
Ushering in an era of new data management and analysis capabilities, open data has given local governments the ability to gain insights and make decisions that allow agencies to focus resources and save taxpayer dollars.

- Albuquerque's move to open up a few dozen transit data sets in 2012 reduced the number of calls to their 311 center by 25%, saving the city $180,000[14]. In San Francisco, 311 calls have dropped 20% at an estimated annual cost savings of over $1,000,000[15].
- Oakland's RecordTrac app allows users to ask for public records, explore past requests, and track the city's response time. By reducing duplicate requests the city has decreased response times and saved thousands of dollars in human resources[16].
- A hackathon organized by county employees in Alameda County (CA) resulted in an invoice-processing app that saves the county $500,000 per year[17].

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[12] https://www.whitehouse.gov/the-press-office/2013/05/09/executive-order-making-open-and-machine-readable-new-default-government-
[13] https://www.whitehouse.gov/blog/2013/05/16/introducing-project-open-data
[14] http://www.statetechmagazine.com/article/2013/12/albuquerques-open-data-efforts-are-delivering-roi-city
[15] http://www.ibtimes.com/growing-open-data-movement-could-mean-big-bucks-1639612
[16] http://www.statetechmagazine.com/article/2014/07/oakland%E2%80%99s-record-tracking-app-model-open-government

- New York City used geospatial sewer data and health department inspections to track down restaurants illegally dumping cooking oil into the city's clogged sewer system[18].
- Louisville's Department of Corrections created a pre-trial criminal justice dashboard that gathers statistics on suspects and those incarcerated to improve pre-trial detainment decisions[19].
- In an effort to alleviate the city's abandoned house problem, South Bend's Department of Code Enforcement is using open data to predict when a residential property will become vacant[20].
- Using open data, the City of New Orleans created a model identifying high-risk fire areas to help their fire department prioritize the distribution of free smoke alarms[21].

Modernizing Constituent Services

The proliferation of smart phone technology over the past 10 years has pushed an ever increasing level of consumer services online and into mobile formats. This has had a profound impact on just about every sector of the economy – with the exception of government. A strong civic tech community, fueled by open data, has the capability to provide local government services for an increasingly mobile society. The following are examples of cities using open data to improve public-facing services:

- Las Vegas combined parcel data, land use, zoning, building occupancy, and business incentives to build a website that helps business owners research the best options to locate their businesses[22].
- When choosing a restaurant, diners in Louisville can find health inspection information on Yelp thanks to open data from the Louisville Metro Department for Public Health and Wellness[23].
- Using open data, residents of Chicago can find out when their street has been plowed by watching snow plow activity[24] in real time or use a mobile-friendly web app to easily find the nearest location to receive a flu shot[25].
- San Mateo County, California, created an open database of local community organizations and the services they offered. The centralized, searchable site makes it easier for residents to find services they are eligible for by providing a single, comprehensive point of reference[26].

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[17] http://www.govtech.com/local/Alameda-County-Calif-Sets-High-Standards-for-Hackathons.html
[18] http://www.nytimes.com/2013/03/24/nyregion/mayor-bloombergs-geek-squad.html?pagewanted=all
[19] https://www.codeforamerica.org/apps/jail-population-management-dashboard/
[20] http://www.southbendtribune.com/news/local/city-joins-open-data-movement/article_db8a2cee-0b6b-11e3-be06-001a4bcf6878.html
[21] http://www.governing.com/cityaccelerator/blog/the-city-of-no-frills-innovation.html
[22] https://www.codeforamerica.org/apps/development-fastpass/
[23] http://www.foodsafetynews.com/2013/09/yelp-is-posting-health-inspection-scores/#.VcTH5flVikp
[24] http://www.cityofchicago.org/city/en/depts/mayor/iframe/plow_tracker.html
[25] http://www.codeforamerica.org/blog/2012/11/06/city-of-chicago-adopts-flu-shot-app-built-by-civic-hackers/
[26] http://www.smc-connect.org/

- San Francisco's Human Services Agency developed a food stamp app to help residents keep track of upcoming due dates and terminations[27].

A Powerful Economic Engine

Open public data has business value as well as civic value. State and municipal government spending on citizen-facing civic technology will reach $6.4 billion in 2015[28]. The sector is currently growing at an annual rate of 23%[29] and is expected to increase at a rate 14 times faster than traditional IT from 2013 to 2018[30]. From 2011 to 2013, private and philanthropic investment in just over 200 civic tech companies and organizations exceeded $430 million[31]. With an impact on a variety of economic sectors, examples of companies that have built their business on city data include:

- **Transportation:** NextBus, one of the first companies to apply open city data commercially, uses metropolitan transportation data to tell commuters when to expect a bus along their route[32].
- **Safety:** SpotCrime collects, analyzes, and maps crime statistics to tell residents which areas are safest or most dangerous and to offer crime alerts[33].
- **Economic Development:** OpenCounter creates an online resource to help new businesses navigate a city's permitting and licensing processes[34].
- **Healthcare:** Purple Binder helps keep city residents healthy. The company's mission is to connect people who need healthcare services with the agencies and organizations that provide them[35].

Not surprisingly, the bulk of this economic activity has been driven by civic tech's early adopter areas: Silicon Valley, Boston, New York and Chicago. Not one of those 200 civic tech companies is located within Central Indiana. Not one of those $430 million dollars has benefited Indy's entrepreneurial

Figure 2: Civic tech startups

[27] http://www.sfgate.com/bayarea/article/Food-stamp-app-helps-residents-keep-benefits-5029025.php#photo-5540191

[28] http://engage.accela.com/RLWhitePaperIDCCivicTechReport_RLWPCDGWhyCloud.html?_ga=1.249424775.1206346411.1436321306

[29] http://www.knightfoundation.org/media/uploads/publication_pdfs/knight-civic-tech.pdf

[30] http://engage.accela.com/RLWhitePaperIDCCivicTechReport_RLWPCDGWhyCloud.html?_ga=1.249424775.1206346411.1436321306

[31] http://www.slideshare.net/knightfoundation/knight-civictech

[32] https://www.nextbus.com/

[33] http://www.spotcrime.com/

[34] https://opencounter.us/

[35] http://purplebinder.com/

tech community. It's a pretty simple correlation that the cities that embraced civic innovation four or five years ago by establishing open data policies, offices of innovation, or civic incubators, are now reaping the rewards of a flourishing sector.

Fortunately for cities, like Indianapolis, who have been slow to embrace civic tech, this current level of economic activity represents barely a fraction of open data's full potential. In other words, there is still plenty of opportunity up for grabs in the civic tech space. According to a 2013 report from the McKinsey Global Institute, open data could unlock between $3 trillion to $5 trillion annually in additional economic output[36]. Of course the report also stipulates that governments that are successful in establishing data standards and shoring up concerns over security and privacy will be the most effective drivers of this new economic engine.

A Magnet for Talent
Considering the realities of an economy where technology plays an increasingly important role, it becomes critical for cities to focus on the most significant determinant of economic activity in the 21st century: workforce. Without the skilled technical talent pool necessary to fuel the explosion in demand of web developers, software engineers, information officers and data scientists, economic opportunity will simply flow elsewhere.

Luckily, the Central Indiana region generates more than a sufficient level of technical talent to supply this demand. Universities throughout the Hoosier State churn out some of the most highly-sought after graduates in the world. Large private companies like Salesforce, Interactive Intelligence and Angie's List recruit technical talent from around the world. And newly formed coding academies like Eleven Fifty and the Iron Yard are filling in the gaps.

In a world that is flat, however, it takes more than renowned universities and a few large companies to successfully compete for top talent. Increasingly this valuable workforce chooses where to live not based solely on job opportunity but based on what is perceived to be the general culture, reputation and overall economic opportunity of an area. In this environment, Indianapolis must not only create the conditions to entice new businesses to the region, it must also create a magnetic environment to attract and retain the talent needed to grow those businesses.

Efforts to attract talent often focus on Central Indiana's quality of life offerings. While factors like cost of living and cultural amenities are important for the future vitality of the region, they do not directly appeal to a technical workforce. If Indianapolis wants to resonate with top technical talent, grown locally or attracted from elsewhere, it is critical for the City to speak in the language of technology. Perhaps one of the strongest potential connections between the technology community and the cities that hope to attract them is public data.

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[36]http://www.mckinsey.com/insights/business_technology/open_data_unlocking_innovation_and_performance_with_liquid_information

The Current Environment

While federal agencies and cities across the country have embraced open data the past six years, the City of Indianapolis has remained on the sidelines. The local civic tech community today is fractured, often misunderstood and largely under-appreciated for its potential role as a vehicle for community engagement or economic development. As a result, open data activity to date has been somewhat limited in its success – data portals have been temporary, challenges have been small in scope and events have been infrequent.

Public Sector Activity

As part of the National Day of Civic Hacking, several state agencies participated in Indy Civic Hack Day[37] in May of 2014, the first civic hack-a-thon to be held in the state of Indiana. Last year, the State's Office of Management and Budget unveiled the Management and Performance Hub[38] (MPH), an attempt to give policy makers real-time data on every state agency.

While these developments have been positive and well-received by the tech community, they have also served as clear examples that the open data movement in Indiana is very much in its infant stage. State agency participation in these hackathons has been voluntary and without strong direction or a sense of urgency from the executive level. Initiatives like the MPH have tended to focus more on internal agency metrics and transparency and less on data as a potential economic driver. As a result, the data that has been opened has been extremely limited in commercial value, provided without thorough consideration for its sustainability or for how a solution, if created, would be utilized.

Private Sector Hacks

Within the past 18 months, almost every large technology business within Central Indiana has sponsored or hosted its first hackathon. These day or weekend-long events are intended to foster rapid, out-of-the-box development for new products for the companies involved. In the case of an internal, employee-only hackathon, participants are encouraged to engage team members from other divisions, giving them the ability to address challenges outside of the constraints of normal business processes. In the case of external public hackathons, sponsoring businesses are looking to introduce new product lines to a broader pool of talent and potentially surface new employees.

Private sector events, like their public sector counterparts, are not without their shortcomings. For instance, the intellectual property developed as a result of most private hackathons is owned by the sponsoring organization. The scope of the event, the data available and the technology utilized are often limited to the sponsor and the sponsor's suite of products. Geographically, tech communities beyond the company's own backyard are often not invited to participate. Each of these factors yields fewer participants and fewer quality outcomes for the companies involved.

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[37] http://www.indycivichack.com/2014
[38] http://www.in.gov/mph/

Untapped Co-Working Spaces

From Velocity in Jeffersonville to The Outpost in Columbia City, co-working spaces are now helping to foster cultures of innovation across the state. In July of 2014, the Indiana Co-Working Passport connected 17 such spaces for the first time, giving participants the ability to utilize the facilities and resources of every member site[39]. From desk space and internet to coffee and camaraderie, these relaxed, open-concept office spaces provide entrepreneurs with many of the basics needed to grow their businesses. Most importantly, the spaces themselves act as magnets for the creative entrepreneurial class by sending the message that they are welcomed and valued in that community.
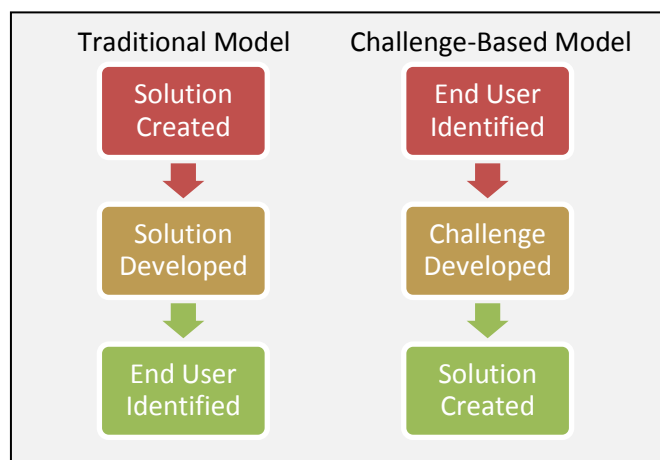
The proliferation of co-working locations, however, should only be viewed as a first step in growing Indy's data economy. Now that entrepreneurs have the physical locations in which to operate, an unprecedented opportunity exists to connect ideas, talent and capital in ways never before possible. Unfortunately, the work currently being done at one location and the needs and opportunities of the membership are rarely shared with other spaces. No communication channel exists to bridge these entrepreneurial communities. Challenges, data, programming and an online hub that connects these components are needed to fully leverage these emerging resources.

A Destination for Venture Capital

Venture capital in Central Indiana today is often subject to an argument similar to that of the chicken and the egg. Which comes first: A better system through which capital can find opportunities or an improved ecosystem that generates more companies that are worthy of funding? If you ask the question to a venture capitalist and a startup entrepreneur, you'll likely get two different responses. The best answer is likely that both are needed to significantly improve Indy's standing in the new data economy.

In order to address the issue of the number of quality, fundable companies in the city, it is first necessary to look at the life cycle of the typical startup. Most startups in the tech community begin with an entrepreneur identifying a perceived need in the market. The entrepreneur then creates a product and invests tens if not hundreds of thousands of dollars in the development, testing and refinement of that product. After the depletion of personal finances, the entrepreneur is left to survive the 'valley of death' while seeking an actual costumer for the product. Not surprisingly, this 'solution in search of a customer' model for startup creation yields a strikingly low level of successful enterprises.

Perhaps one of the most fundamental changes produced by a data-driven economy and a civic tech ecosystem is that it creates a

Traditional Model	Challenge-Based Model
Solution Created	End User Identified
Solution Developed	Challenge Developed
End User Identified	Solution Created

[39] http://launchfishers.com/2014/07/icp/

'customer in search of a solution' startup model. The process of identifying public and private sector challenges and opening the data required to solve those challenges creates natural built-in end users. The commonality of the problems facing states and municipalities across the country ensures a significant need in the marketplace and the opportunity to scale businesses. This more collaborative environment will strengthen the bridge between Indy's largest governmental and civic entities and the entrepreneurial talent that can solve their challenges. The result is a greater long-term pipeline of quality companies and more attractive funding opportunities for venture capitalists in a variety of industry verticals.

Indy's Path Forward

Indy's late entry to the open data movement doesn't mean the city is relegated to playing catch-up. In fact, understanding what other cities have done and learning from their successes and failures could be a tremendous advantage and give Indy a chance to create something both unique and more impactful than our peers.

With this basis of understanding for the current strengths and weaknesses of the open data ecosystem, the following steps are recommended to make Indianapolis a recognized leader in the civic tech space.

1. **Establish Tenets of Policy.** The first critical step in creating an open data initiative is to set the ground rules. With close to one hundred US cities providing open data in some form, there exists a variety of philosophies and strategies for how best to approach the conversation. It is important, therefore, to establish the following five tenets as the cornerstone for Indy's open data effort.

> *Tenet #1:* **Focus on Results**. An open data initiative should not be about checking a box. It should not be viewed as a short-term public relations play or an opportunity to be perceived as more transparent simply because more information is publicly available. The open data initiative for Indianapolis must focus on the delivery, understanding, and use of data towards measurable outcomes that benefit the larger public good.

> *Tenet #2:* **Change the Culture**. Open data efforts are often seen initially as just another requirement for the already over-burdened IT departments of cash-strapped municipal agencies. Participation by city and state agencies in Indy Civic Hack Day shows an increased level of interest in civic technology but, by and large, the attitudes of public sector data gatekeepers and the antiquated processes of IT procurement have remained unchanged. Creating a robust civic tech ecosystem must be seen as more than the arduous chore of switching the format of a handful of data sets. It must be recognized as an opportunity to fundamentally rewrite and strengthen the contract between government and the citizenry it serves. This requires a change in the attitude towards public data across every municipal agency and a culture that embraces an open, innovative government.

> *Tenet #3:* **Quality over Quantity**. Several of open data's early adopter cities boldly proclaimed that any public data that wasn't otherwise restricted in some manner should be open by default. While this tactic does make it easier at the onset for agencies to understand

the expectations of an open data policy, this type of broad dictate ultimately results in agency staff allocating time and resources to focus on data sets that are of little interest to the public and no use to the private sector. An unnecessary glut of data can even lead to cost overruns for open data portals and unanticipated privacy issues[40]. The objective of a successful open data effort should be to benefit the greater public good, not produce the greatest number of data sets. The City of Indianapolis, therefore, should identify a limited number of priority data sets and work to optimize both the breadth and the depth of the information contained within them.

Tenet #4: **Strict Privacy and Security Measures**. Protecting the privacy of individuals and the security of the community must be the top consideration for any conversation around the availability of public information. Unfortunately, many public data gatekeepers seem to rely on disparate systems and difficult-to-use formatting challenges of the current data as a safeguard against nefarious use. This type of outlook prevents the use of data for the public good and will ultimately fail to prevent the release of unwarranted information or improper use. Open data must be recognized as an infinitely more powerful form of data that can have both positive and negative outcomes. Public information, therefore, should only be provided in open format after conducting a thorough examination of the potential unintended consequences of its release and a filter has removed all personally identifiable data points.

Tenet #5: **Regional Inclusion**. Very few of the existing municipal open data portals venture far from urban cores. Even some of the largest city websites fail to include smaller nearby suburbs that could help provide a more comprehensive view of a specific issue. Since economic opportunity and civic challenges don't stop at a county line, neither should open data. In order to provide comprehensive, quality information – and set Indianapolis apart from peer cities – the city should create the opportunity for surrounding counties and municipalities to participate in a regional open data portal.

2. **Clearly Define Objectives.** Open data initiatives often flounder when a community fails to clearly communicate why a new policy is necessary or define what will constitute success. Is the objective simply transparency? Is the goal to use data to make government more efficient or is it to spur new entrepreneurial activity? How will any of open data's outcomes be measured? These are all critical strategic questions that must be answered before any open data initiative can begin. For an open data initiative in Indianapolis to be successful, it must accomplish each of these four primary objectives.

Objective #1: **Realize Internal Efficiencies**. Giving government the tools and assistance necessary to improve how public work is done is often the most logical first step for putting open data to use. The City, therefore, should focus initial efforts on how to cut costs or stretch staff resources. This impact could be quantified by actual dollars saved or the decrease in the number of staff hours consumed by a particular activity.

Objective #2: **Improve Public Services**. Despite the nearly daily advancement in the use of data for commercial purpose, the public sector often hangs on to obsolete technology for years. As a result, the interactions residents have with local government can be inefficient and frustrating. This dysfunctional perception of government closest to its citizenry can

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[40] http://www.governing.com/columns/tech-talk/gov-open-data-cost-problems.html

spill over and have a negative impact on the community's broader sense of itself. For Indianapolis to advance the perception that it is a leading entrepreneurial hub that can attract tech talent, the City should use open data to modernize the interactions constituents have with municipal agencies. This impact could be quantified by the number of new services provided, the level to which those services are utilized, or by a public survey of the changing attitudes of the community towards public services.

Objective #3: **Strengthen Civic Engagement**. Civic innovation is about more than just putting data online or providing a new app for people to use. It should also create opportunities for the community to connect with the City in a meaningful, impactful manner. With the close relationship between civic engagement and talent retention, it is important for Indy's open data effort to have a strong level of community involvement. Beyond a policy and a portal, programming that facilitates a data dialogue is necessary to help bridge the gap between government and the civic tech community. This impact could be quantified by the number of participants in civic tech organizations like the Open Indy Brigade, the number of non-profits assisted, or the number of volunteer hours donated to public projects.

Objective #4: **Create Economic Opportunity**. The final but perhaps most central objective for an open data initiative will be to surface opportunities that can result in new products and businesses. Without a strong connection to open data and focus on civic innovation, Indianapolis-based tech companies and entrepreneurs will continue to lose out on commercial civic tech opportunities. It is critical, therefore, that an open data initiative seek to identify challenge areas that present the highest probability for commercial application and that the release of data be prioritized for information with the highest likelihood to generate economic activity. This impact could be quantified by the number of Indy-area businesses applying open data for commercial use, the percentage of city IT dollars being directed to local businesses, and the number of new civic tech oriented startups being launched.

3. **Pass an Executive Order**. The creation of an executive order is an opportunity for the City of Indianapolis to clearly articulate the tenets and objectives of an open data policy and take the first step towards a robust civic tech ecosystem. Despite their limited legal status, executive orders are an effective tool for setting a foundation by defining open data, establishing basic guidelines and assigning responsibilities for execution.

4. **Assign Leadership**. One of the largest obstacles currently facing Indy's civic tech movement is the simple fact that no one city or state agency or organization owns the responsibility of promoting open data. There certainly is no shortage of agency data gatekeepers, elected officials, private sector companies, and community activists that tout

Office of Innovation

Data Advisory Council
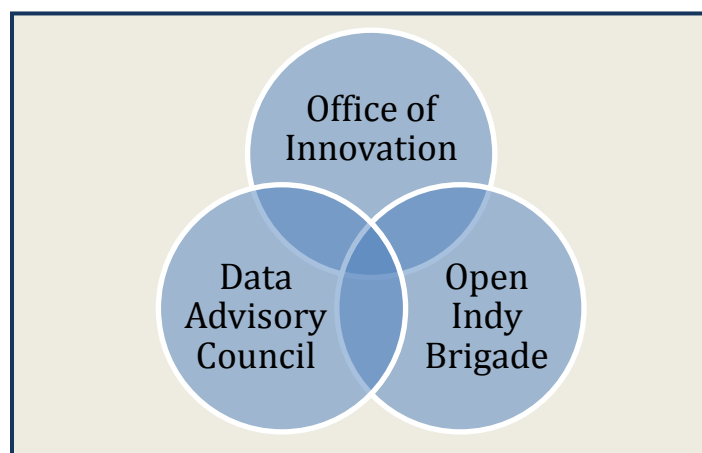
Open Indy Brigade

the need for open data in Central Indiana. But as is often the case with a large, complex initiative, if no one owns responsibility for advancing the cause, nothing gets done.

The creation of the Open Indy Brigade is a valuable first step, but internal agency and executive level action is necessary to advance the civic tech movement. An Open Data Advisory Council and Office of Innovation should therefore be established.

5. **Form an Open Data Advisory Committee**. An Open Data Advisory Committee should be created and convened for the purpose of executing the five tenets of the open data initiative and making progress towards its four objectives. The Committee should be comprised of private sector, public sector, non-profit, and university representatives with the following responsibilities:

- Raise the awareness level around open data and civic innovation to key stakeholder groups.
- Ensure that the release of open data does not compromise privacy or security standards.
- Identify information that has the potential to be of high economic value.
- Foster relationships with the State General Assembly and City Council and support policy that promotes the release of open data.
- Provide oversight and direction for the Office of Innovation.

6. **Form an Office of Innovation led by a Chief Innovation Officer.** Once an open data policy is in place, it becomes critical to have an internal team in position to manage the process. Led by a Chief Innovation Officer (CIO), the office should have the following responsibilities:

- Establish clear expectations, processes, and formats for city agencies to provide data.
- Identify and pursue funding from multiple sources including the Bloomberg Philanthropies' What Works Cities Program[41] and the Knight Foundation[42].
- Create a comprehensive data inventory and a process for regular updating.
- Develop a plan for, and roles and responsibilities around, updating and maintaining datasets.
- Create a unique identifier system to identify individuals, entities or locations and alleviate potential privacy and security issues.
- Monitor the open data activity of other cities and apply best practices to local agencies.
- In cases where priority public data does not yet exist, act as a point of contact where private businesses can lobby the city for information.
- Establish a schedule for on-going data improvement.
- Lastly, to be transparent and educate the public, produce an annual report to chronicle open data activity and measure outcomes.

A CIO should also be assigned to lead the office, report to the Open Data Advisory Council, and act as a liaison to the Open Indy Brigade and other relevant community organizations. While there is no "one size fits all" template for this position, it is essential that the individual has a direct connection

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[41] http://whatworkscities.bloomberg.org/
[42] http://www.knightfoundation.org/what-we-fund/engaging-communities

to the Mayor's Office, giving that person the organizational strength to push an open data initiative when it meets internal resistance, as it most certainly will.

7. **Build network of municipal data portals**. A strategic effort to open data at the city level is a good first step but it only pulls Indianapolis even with other competitive cities. A robust regional portal that incorporates data from Marion and the surrounding counties would provide businesses with an invaluable treasure trove of information and truly differentiate the region from other tech hubs.

The Open Indy Brigade has recently developed a data portal[43] of its own that is intended to act as a bridge for municipal agencies at the early stages of the open data process. This portal, available and free to any city agency, allows municipal gate keepers to participate in open data projects, hackathons, or other limited engagement data events without having first to establish a portal of their own. As interest and confidence in the value of open data grows, each municipality should begin to appreciate the need to create their own portal and information on the Open Indy portal should then be moved to the local portal.

8. **Establish Data Guidelines**. Not all data is created equally. While PDFs, Excel files, and clunky searchable databases have ruled the online municipal landscape for the better part of the past 20 years, the information should be by no means considered actionable. In other words, at the core of the open data effort is the concept that information should not merely be attainable – it should be easily accessible and usable. It is critical for this initiative to differentiate between the format and functionality of how public data is currently provided online and the format and functionality of open data.

> **Limit Barriers to Access** - To provide truly open access, there must be the right to reuse government information with minimal technical restrictions, access fees or usage limitations. Whether these technical restrictions have been specifically put in place or are the accidental result of the choice of data format or software, it is appropriate for an open data policy to address and remove as many of these barriers to access as possible. There should also be no license-related barrier to the reuse of public information.
> **Create Machine-Readable Standards** - To maximize usage, data must be released in formats that lend themselves to easy and efficient reuse via technology. This means releasing information in machine-readable formats that are structured appropriately.
> **Establish Unique Identifiers** - Unique identifiers are reference numbers used to identify unique individuals, entities or locations. The use of unique identifiers across data sets can alleviate privacy and security concerns and improve the quality of data analysis. The Open Indy Brigade should work with the Office of Innovation to develop a citywide system of unique identifier numbers.
> **Maintain an Inventory** - For an open data policy to have a strong foundation, the City of Indianapolis first needs to know what data it has—and so does the public. To make it easier for users to find specific data sets, the portal should permit indexing and searching by search engines. A link to an inventory or a list of what data is contained within the portal

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[43] http://www.indycivichack.com/brigade

would also allow users to quickly see what kind of information is available. Analytics on data downloads should also be displayed to help stakeholders understand what data sets are of the highest interest.

Review Regularly - The public should be involved in the ongoing assessment and review of the policy's implementation. The Office of Innovation should release an annual report at a public meeting that also allows an opportunity for public feedback about data quality, quantity, selection, and format, as well as the user-friendliness of the point of access. In order to keep up with current best practices and respond to public feedback, the open data policy should mandate future review of the policy itself on an annual basis.

9. **Pass Open Data Legislation**. Once an open data initiative reaches this point, it becomes imperative for the City Council to amend the code to specifically address open data. An Executive Order is a necessary first step but it lacks the teeth to create a comprehensive, sustainable open data movement. With the benefit of the hindsight provided by the movement's initial steps, legislation is now needed that can improve upon the Executive Order and ensure the data will be continue to be open beyond the current administration.

10. **Leverage the Open Indy Brigade**. Local government cannot be expected to solve every technology challenge on its own. The City must find a way to tap into the collective skill set of the community to successfully employ solutions. As Central Indiana's first Code for America affiliate, the Open Indy Brigade has the potential to connect city government with civic-minded tech talent in Indianapolis and with a broader community of civic tech enthusiasts all over the world.

But the Brigade is essentially only as strong as its level of buy-in from city agencies and local elected officials. Without a strong flow of data and challenges from city government, some of Indy's best and brightest tech entrepreneurs and data enthusiasts are left to apply their talents to the problems of other cities and states. The Office of Innovation and Open Data Advisory Council should therefore work in tandem with the Brigade and support their efforts through regular dialogue, concepts for challenges, and financial resources.

11. **Identify Initial Pilot Projects**. Because open data itself is a somewhat of a large, ambiguous term, it is important for Indianapolis to identify several key areas where civic innovators within the Open Indy Brigade can quickly apply their skills and produce significant, tangible results. The following are three recommendations for pilot projects that can be developed and implemented in short-term (3 months), medium-term (6 months), and long-term (12 months) time frames.

- **Short-Term Project**: Provide restaurant inspection data for Yelp. The Marion County Health Department has provided health score information for restaurants online since 2008[44]. But how many patrons check with the Department's website before dining out? Providing a direct feed to the information on a consumer review site like Yelp gives residents valuable data at a place and time where they need it. Plus, doing so is free[45].

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[44] http://www.wthr.com/story/8836960/marion-county-launches-online-restaurant-inspection-program
[45] http://www.yelp.com/healthscores

- **Medium-Term Project**: Create a web application to track public records requests. Developing an online repository of Freedom of Information Act (FOIA) requests complete with the response time to fulfill those requests promotes government transparency and accountability. It can also cut down on duplicate requests and save staff time. An app that was generated out of a Code for America fellowship in 2013 allows users to ask for public records and explore past requests. And as with all CfA fellowship products, the source code is open and free for other cities to use[46].
- **Long-Term Project**: Develop a data-driven approach for making infrastructure improvements. Walkability is a growing issue of importance as it relates to public safety, public health, and economic development. Regarding public safety, Indianapolis currently ranks as one of the most deadly cities in the country for pedestrian fatalities[47]. In terms of public health, isolated neighborhoods often lack access to bike trails or parks making it challenging for residents to maintain a healthy lifestyle. And walkability often plays a central role in the location search decisions of businesses who seek to promote a healthy lifestyle among employees. The City currently lacks a comprehensive county-wide infrastructure map designating the locations of both sidewalks and street lights. A map with existing infrastructure, historical pedestrian accident data, and locations of important community resources, such as schools, grocery stores, and medical facilities, should be developed. A "walkability scoring system" should then be established to identify residential areas in most need of infrastructure improvements.

12. **Construct challenges through municipal agencies**. Open data for the sake of transparency is a costly and all too often symbolic exercise. Creating an ocean of data with little regard to its economic value or how local businesses might connect the dots to form a solution is ultimately of little benefit to the tech ecosystem. Challenges are necessary to help entrepreneurs understand where there is a need in the market and where the data can be found to create a product.

The Office of Innovation, with assistance from the Open Indy Brigade and Open Data Advisory Committee, should work with municipal agencies to identify and create challenges that can be resolved through the utilization of open data. Submitted challenges should be vetted by the Office to assess commercial potential, degree of difficulty, relevant skill areas and likely sponsors, mentors and in-kind service providers. Easier, less demanding challenges can help grow the ecosystem in the long-term by introducing high school and college students to computer science. Intermediate challenges that can be shorter in duration are successful in helping the community to hone its skills, foster networking and create a culture of innovation. More complicated challenges that are constructed for economic potential with a clear end user in mind are more likely to produce commercial products and startups that are closer to being investment ready.

13. **Build an online hub to connect tech talent**. Local tech companies, along with their coastal competitors, are increasingly employing new creative opportunities like hackathons through which to surface, identify and recruit top talent. It almost goes without saying but the communities that

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[46] https://github.com/codeforamerica/recordtrac
[47] http://www.wthr.com/story/25585556/2014/05/22/indianapolis-ranked-among-most-deadly-for-pedestrian-accidents

most successfully connect tech talent with each other, with entrepreneurial opportunities and with established companies looking to grow will naturally become magnets for economic activity.

An online hub that integrates social media is needed to help connect disparate teams of talent using opportunities to solve large civic challenges as the catalyst. The Office of Innovation should create and maintain a portal that galvanizes Indy's tech community by highlighting available open data sets and challenges, creates an infrastructure that promotes new teams and startups of diverse backgrounds, markets tech events around the region and provides a forum through which tech companies can seek out and recruit new employees.

14. **Host virtual and in-person events to highlight challenges and data**. A regular annual cycle of virtual and in-person events that introduce talent to civic opportunities is essential for the continuous strengthening and growth of the tech ecosystem. The establishment of branded programming that effectively mixes different geographical areas and industry sectors will fuel the pipeline of tech startups and further differentiate Indy from the activity taking place elsewhere.

Smaller meetups through the Open Indy Brigade should be held monthly and larger events quarterly at tech hubs throughout the region. To facilitate these events, the Office of Innovation should incorporate mayors and municipal staff to encourage regional participation within government. Co-working spaces, coding schools, and universities should host these events since they are natural hubs of entrepreneurial tech activity.

15. **Improve the Procurement Process for Local Tech Businesses**. The current procurement process for tech startups interested in doing business with the city or state is often perceived as being cumbersome and needlessly restrictive. The result is a process that too regularly favors larger, more established out-of-state vendors. If the City seeks to grow economic opportunity by using technology and data to better serve constituents, the current process for IT procurement must be reevaluated. The first step towards a procurement process that engages local technology companies and makes the process more transparent is to use a platform, like GitHub, that is known and trusted by the tech community. In a case study by the City of Philadelphia, responses for city bids from local technology shops increased dramatically once GitHub was utilized as a procurement platform[48].

16. **Reconstitute economic development metrics for the technology sector**. Any effort to grow a data-driven economy is destined to be perceived as ineffective if judged by the traditional economic development goal posts of job creation and capital investment. Job growth in the technology sector is rarely headline-worthy with most companies growing by 5 to 25 employees at a time. Likewise, capital investment of even some of the most successful tech companies usually doesn't rise to a level that warrants tax abatement. As a result, the incentives provided and the visibility afforded good, growing tech companies are often less than that of companies operating in traditional industry sectors.

In order to better support the technology sector, economic development agencies must review current metrics and adjust desired outcomes to reflect the nature of the startups they are looking to

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[48] http://civic.io/2013/03/27/experiments-in-github-based-procurement/

attract and grow. While job growth and capital investment will always remain the long-term goals of economic development, a more accurate reflection of tech sector activity is needed. The following are several areas of metrics where a new initiative to grow the data economy must have an impact:

a) Number of companies utilizing publically available data sets
b) Percentage of public IT projects awarded to in-state vendors
c) Number of tech startups receiving grant, angel and/or VC dollars

17. **Connect viable teams with mentors, in-kind services and early stage funding opportunities**. Once the data has been opened, the challenges constructed, the event hosted and the product created, the final missing piece of the puzzle is the supportive infrastructure needed to get that product to market. Many tech events succeed in bringing relevant topics to the foreground, assembling impressive rooms of diverse talent, and facilitating meaningful conversation. Without a clearly delineated path for next steps, however, even the most well-intended and attended events generate little more than a cul-de-sac of ideas and opportunities.

The Office of Innovation must develop a sustainable pathway to commercialization and funding for the best teams and products created by the data ecosystem. Across the region a diverse network of mentors must be established to dedicate time to working with raw teams and fledgling startups to quickly identify weaknesses and connect to appropriate resources. Law firms, marketing agencies and business coaches must be assembled and asked to provide a basic entry level suite of in-kind services. Lastly, teams that are not yet ready for angel or venture funding should be connected to the Indiana Small Business Development Center, the Business Ownership Initiative, or other non-profit entities that can help provide grants and other forms of early stage capital.

Summary

In summary, Indianapolis has all of the necessary pieces to build a new economic engine fueled by open data, public challenges and the best and brightest of our talented workforce. Despite this enviable position, city government has yet to meaningfully engage the tech community and leverage it to its full economic potential. As a result, Indianapolis is in danger of falling further behind more established centers of tech innovation and being surpassed by smaller communities of bolder vision and more aggressive action. By creating a comprehensive open data strategy and supporting the entities necessary to execute that strategy, Indianapolis is sowing the seeds of economic success that will benefit the region's workforce, entrepreneurial class and innovative communities for many years to come.