



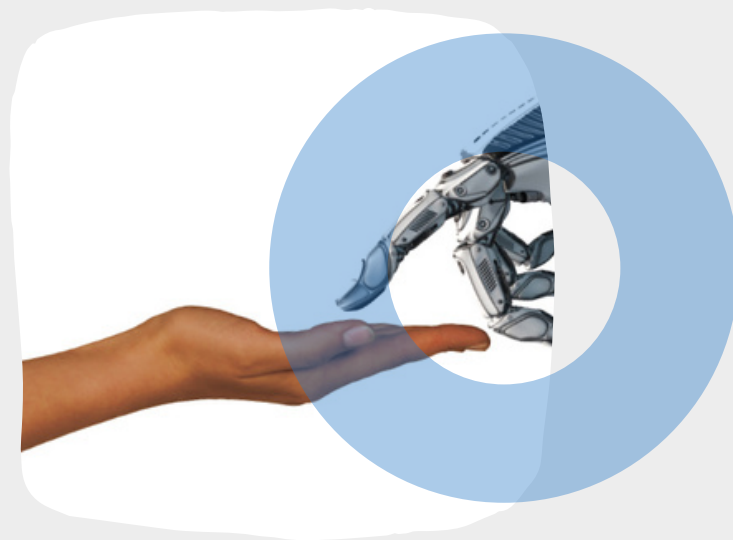
SMART AI POLICIES

FOR THE CITY OF
PHILADELPHIA'S
OFFICE OF
INNOVATION &
TECHNOLOGY



UNIVERSITY OF PENNSYLVANIA-
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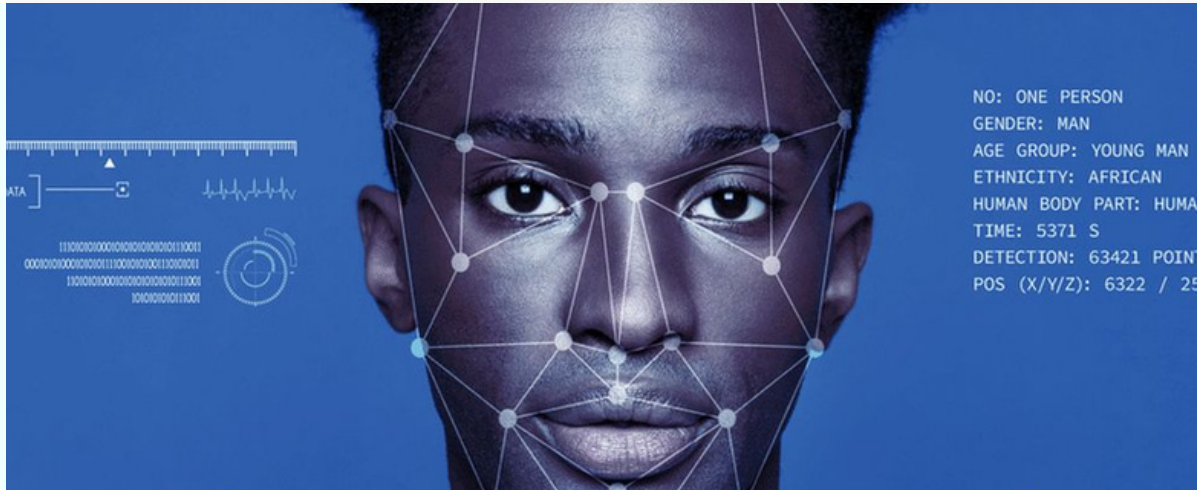
Background

Artificial Intelligence (AI) silently envelops the human experience each and every day. It resides in our use of customer service to the apps we spend our leisure time on via our cell phones. AI policy silently permeates all of our daily lives and remains vitally important because AI (from its tools to its research) impacts almost all of our world's issues— from climate change and housing insecurities to gender and racial disparities. AI and machine learning already heavily impact the issues that reside closest to most hearts— yet many politicians, community leaders, or citizens do not focus on the importance of AI or its policies.¹

The term Artificial Intelligence was first coined at a conference at Dartmouth College funded by a US government grant, a grant that also helped support Google founders' graduate research and the research leading to the creation of Siri. Artificial Intelligence consists of many aspects but broadly defined to be an algorithm, computer or machine that mimics human problem-solving.²



Policy Issue + Problem



01 What are the issues?

Multiple risks unfortunately remain associated with the use of AI technology and tools. Some of these risks include: biases such as with race and gender, data security, and abuse of data mining and information.³ Governments both locally and federally contain governance, regulations, and laws already in existence that are helping them work to build innovation and efficiency in their operations. However, although AI continues to be utilized by governments, city governments in particular, have little to no formal policies or legislation regarding AI.

What policies can help us as a society reap the benefits as well as reduce the potential risks from the use of machine learning and AI technology? What policies can help assist city governments to remain organized and accountable to the benefits and risks of AI? The City of Philadelphia's Office of Innovation and Technology became one of the first cities in the U.S. to utilize AI to solve some of its toughest issues from air quality to communicating with its citizens.⁴

This report will provide an extensive review of the most recommended and up-to-date policy recommendations for the responsible use of AI technology for city governments. These recommendations will hopefully encourage the City of Philadelphia's OIT to create a formal AI policy with standards involving research and decision-making that ensures the public can trust effective AI tools and programs.

Research + Key Claims

Benefits and Risks

For the purposes of this discussion, it is useful to think of AI generally as automated decision systems (ADS) or machine learning. These decision systems include any systems, software, or process that use computation to aid or replace government decisions, judgments, and/or policy implementation that impact opportunities, access, liberties, rights, and/or safety.⁵

AI systems are increasingly embedded into and even replacing some government functions. This is why it is utterly crucial to understand why this technology presents significant issues for governments.⁶

Benefits

So what are the benefits of AI? AI systems are typically created for a particular goal such as mitigating traffic flows to managing hospital capacities.

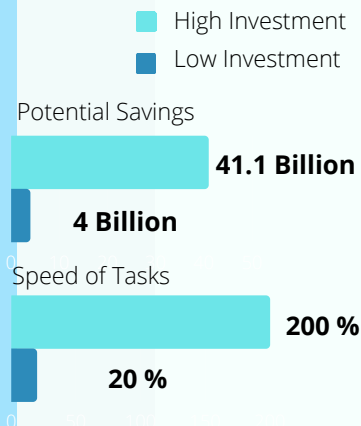
They can potentially improve the processes of public agencies and citizens - for example, by utilizing chatbots to facilitate communication and information retrieval.

Risks

AI also bears risks - such as with some police facial recognition tools incorrectly identifying an individual as a criminal, leading to wrongful arrests and convictions to harmful data harvesting.⁷



How Much Savings can AI in Government Generate?⁸



5. M. Sloan, C. Rumman, J.C. Havens, T. Lazovich, & L.C. Alba, (2021), AI and procurement, A Primer, <https://archive.nyu.edu/bitstream/2451/62255/2/AI%20and%20Procurement%20Primer%20Summer%202021.pdf>

6. NYC Mayor's Office of the Chief Technology Officer, (2021), AI Strategy: the New York City Artificial Intelligence Strategy, https://www1.nyc.gov/assets/cto/downloads/ai-strategy/nyc_ai_strategy.pdf

7. Timnit Gebru et al., "On the dangers of stochastic parrots: can language models be too big?", December 15, 2021, <https://dl.acm.org/doi/pdf/10.1145/3442188.3445922>

8. Viechnicki, P., & William E.D. (2017). How much time and money can AI save government?

<http://www2.deloitte.com/us/en/insights/focus/cognitive-technologies/artificial-intelligence-government-analysis.html>

Research + Key Claims



AI Policy: City of Philadelphia

AI policy typically falls into three categories. These three categories are the following:

- **Direct AI Policy:** usually federal and regulations
- **Indirect AI Policy:** usually intellectual property laws, trademarks, etc.
- **AI-Relevant Policy:** usually relevant policy/education laws, welfare policies, biases, fairness, etc.⁹

The US federal government has produced some AI policies, however, according to interviews with the Deputy U.S. Chief Technology these policies are very broad to allow not only for innovation but also for individual state and city governments to develop machine learning policies that fit for their own needs and concerns.¹⁰ The City of Philadelphia's Office of Innovation and Technology (OIT) is one of the leading smart cities utilizing AI to assist with solving some of the city's issues. However, currently the OIT office does not have a formal AI policy for their office.



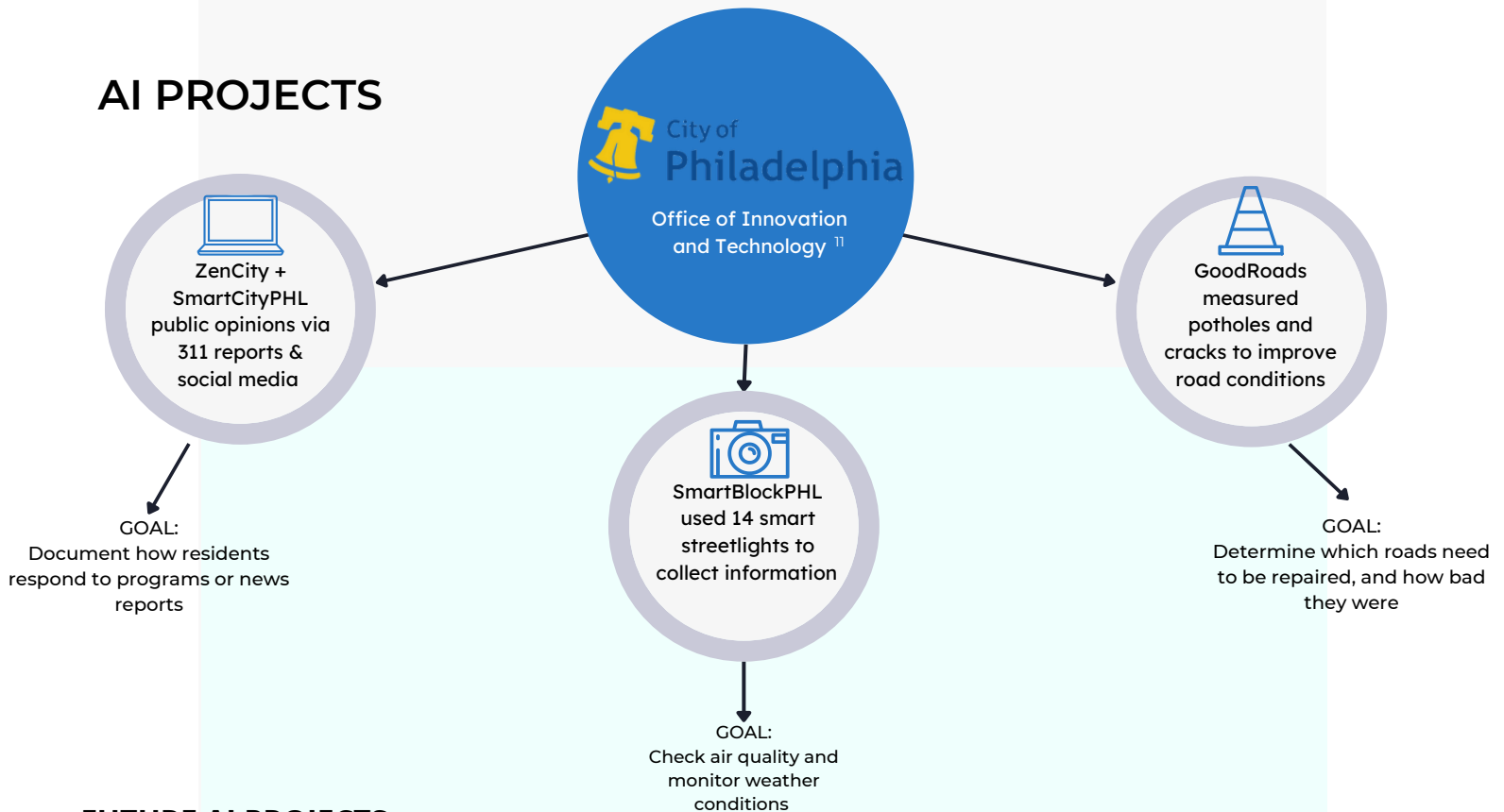
9.Miles Brundage, & Joanna Bryson, (2022), Smart Policies for Artificial Intelligence, <http://arxiv.org/ftp/arxiv/papers/1608/1608.08196.pdf>

10.Christopher Yoo & Alicia Lai (2020), Regulation of Algorithmic Tools in the United States, Legal Scholarship Repository. https://scholarship.law.upenn.edu/faculty_scholarship/2246/

Research + Key Claims

AI Projects: City of Philadelphia

AI PROJECTS



FUTURE AI PROJECTS + COMPANIES TO CONSIDER:

SAP

Companies such as SAP are offering the chance for governments to run their operations and regions more effectively and efficiently, providing products and services for conversational AI, intelligent robotic automation, AI business services, and data intelligence.¹²

In 2018, SAP became the first European technology company to develop its own policies and guidelines for Artificial Intelligence and to create an external advisory council for its ethical use.¹³

¹¹.Esposito, N. (2022). [City initiative uses data and artificial intelligence to improve Philly's infrastructure](https://gridphilly.com/blog-home/2022/5/31/city-initiative-uses-data-and-artificial-intelligence-to-improve-phillys-infrastructure/), Grid, <https://gridphilly.com/blog-home/2022/5/31/city-initiative-uses-data-and-artificial-intelligence-to-improve-phillys-infrastructure/>

¹².Wunderle, B. AI at SAP: The path to the intelligent enterprise. <http://news.sap.com/2022/03/ai-at-sap-path-to-intelligent-enterprise/>

¹³. See source 12 above.

Recommendations

These are the top informed best practices for AI policies from other city government entities such as the NYC Mayor's Chief Technology Officer, private tech companies like SAP and Google, to academic researchers such as Timnit Gebru and Christopher Yoo. A formal AI Policy for the City of Philadelphia's OIT should incorporate the following: *

01

REGULATION

Governments should try to first refer to existing regulatory frameworks, experts, and instruments that may encompass AI applications.

02

RISK-ASSESSMENT & LIABILITY

Risk-assessment of potential harms along with the many social and economic benefits promised by AI is necessary as well as performing a cost-benefit analysis periodically.

03

TRANSPARENCY + DISCLOSURE

Different stakeholders require different forms of transparency and requirements should be tailored to make sure the information is presented when stakeholders want it, in terms they can understand and actionable.

04

AUDITS

Audits for AI are needed using independent auditors that are qualified professionals and entrusted in their fields that qualify for the appropriate audit (from fairness to security).

05

FAIRNESS

Governments are responsible for providing approaches and guidance to fairness, defining the appropriate fairness benchmarks for AI tools, and holding organizations accountable if these benchmarks are not met.

06

DATA PROTECTION + SECURITY/PRIVACY

This is the most crucial component as it also applies to the collection and use of data and is important to the public's trust. Governments' legal departments can assist against misuse and abuse of digital information.

07

PROCUREMENT + CONTRACTING

Most US cities already have strong procurement rules and expertise at key agencies to evaluate bids and negotiate contracts which they can incorporate in a formal policy resulting in fair and responsible AI systems and companies.

08

COMMUNITY ENGAGEMENT + PARTICIPATION

It is important for government to include the public as a stakeholder from town halls to social media because government is responsible for ensuring that technology reflects the concerns, needs, and values of constituents while accurately accounting for the impacts to their citizens.

09

EXPLAINABILITY

Google states that explanations can be costly in terms of technical resources however-- it is necessary for governments to explain to stakeholders involved the impacts of AI technologies deployed so their communities can respect, trust, and feel empowered.¹³

AI Policy Types:

- **Direct AI Policy:** usually federal and regulations
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Conclusion

The Future of the City of Philadelphia

An extensive literature review for both qualitative and quantitative data was completed over the course of one year with over 100 sources. Ultimately, 17 sources were finalized with the top concerns and recommendations for AI policies from peer reviewed to journal articles. The most mentioned best practices for AI policies from other city government entities such as the NYC Mayor's Chief Technology Officer, private tech companies like SAP and Google, to academic researchers such as Timnit Gebru and Christopher Yoo were apart of the final recommendations.

For the City of Philadelphia's Office of Innovation and Technology, the main policy types that would benefit the city and its operations in regards to AI is AI-Relevant Policy--which typically is policy that is relevant to education laws, welfare policies, biases, and fairness as well as other city issues. There are 9 recommendations for the OIT office to incorporate an AI policy. A formal AI policy for the City of Philadelphia is necessary as it can be a guiding map to assist the city to continue to remain organized as well as accountable to the benefits and risks of AI now and in the future years to come.

For more information about AI and tech policies scan the QR code below:



References:

- Brundage, M. & Bryson, J. (2022). Smart policies for Artificial Intelligence. <http://arxiv.org/ftp/arxiv/papers/1608/1608.08196.pdf>
- Byers, (2014). A. Disconnect: old laws vs. new tech. Politico. <https://www.politico.com/story/2014/10/washington-dc-technology-112091?o=0>
- City of Philadelphia. (2022). Office of Innovation and Technology. <https://www.phila.gov/departments/office-of-innovation-and-technology/>
- Eggers, W., Schatsky, D., & Viechnicki. AI-augmented government: using cognitive technologies to redesign public sector work. Deloitte. <https://www2.deloitte.com/us/en/insights/focus/cognitive-technologies/artificial-intelligence-government.html>
- Esposito, N. (2022). City initiative uses data and artificial intelligence to improve Philly's infrastructure. Grid. <https://gridphilly.com/blog-home/2022/5/31/city-initiative-uses-data-and-artificial-intelligence-to-improve-phillys-infrastructure/>
- Geburu, T., Bender, E., & McMillan-Major, A. On the dangers of stochastic parrots: can language models be too big?. December 15, 2021. <https://dl.acm.org/doi/pdf/10.1145/3442188.3445922>
- Google. Perspectives on issues in AI governance. (2022). <https://ai.google/static/documents/perspectives-on-issues-in-ai-governance.pdf>
- Google. Recommendations for regulating AI. (2022). <https://ai.google/static/documents/recommendations-for-regulating-ai.pdf>
- Hecht, J. More data, more engagement: using tech to respond to resident concerns about Philadelphia streets. <https://www.phila.gov/2021-11-03-more-data-more-engagement-using-tech-to-respond-to-resident-concerns-about-philadelphia-streets/>
- IBM Cloud Education. Artificial Intelligence (AI). IBM, June 3, 2020. <https://www.ibm.com/cloud/learn/what-is-artificial-intelligence>
- Islam, L. (2021). More data, more engagement: using tech to respond to resident concerns about Philadelphia streets. City of Philadelphia Office of Innovation and Technology. <https://www.phila.gov/2021-11-03-more-data-more-engagement-using-tech-to-respond-to-resident-concerns-about-philadelphia-streets/>
- NYC Mayor's Office of the Chief Technology Officer. (2021). AI strategy: the New York City Artificial Intelligence strategy. https://www1.nyc.gov/assets/cto/downloads/ai-strategy/nyc_ai_strategy.pdf
- Patel, J., Manetti, M., Mendelsohn, M., Mills, S., Frank, F., Lars, L., & Rocha, M. AI brings science to the art of policymaking. (2021). BCG. <https://on.bcg.com/39SLVz8>
- Sloan, M., Rumman, C., Havens, J.C., Lazovich, T., & Alba L.C. (2021). AI and procurement. A Primer. <https://archive.nyu.edu/bitstream/2451/62255/2/AI%20and%20Procurement%20Primer%20Summer%202021.pdf>
- Viechnicki, P., & William E.D. (2017). How much time and money can AI save government? <http://www2.deloitte.com/us/en/insights/focus/cognitive-technologies/artificial-intelligence-government-analysis.html>
- Wunderle, B. AI at SAP: The path to the intelligent enterprise. <http://news.sap.com/2022/03/ai-at-sap-path-to-intelligent-enterprise/>
- Yoo, C., & Lai, A. (2020). Regulation of Algorithmic Tools in the United States. Legal Scholarship Repository. https://scholarship.law.upenn.edu/faculty_scholarship/2246/