Smart City PDX Comments on the Focused Intervention Team Community Oversight Group's (FIT-COG) Official Recommendation on the Implementation of ShotSpotter Technology as a Focused Deterrence Tool to Address Gun Violence in Portland.

Introduction.

Portland FIT-COG is recommending the use of ShotSpotter as a technological solution that uses audio sensors and machine learning algorithms to identify gunshot locations in real time[1].

The Bureau of Planning and Sustainability Smart City PDX program has been working on issues around privacy and surveillance technologies. This work has been in close collaboration with the Office of Equity and Human Rights. More information about this work can be found at https://www.smartcitypdx.com/privacy

The existing definition of Surveillance Technologies[2] included in a City of Portland policy is any software, electronic device, system utilizing an electronic device, or similar used, designed, or primarily intended to collect, retain, analyze, process, or share audio, electronic, visual, location, thermal, olfactory, biometric, or similar information specifically associated with, or capable of being associated with, any individual or group.

Under this definition, ShotSpotter's service can be considered a Surveillance Technology.

Comments and Recommendations

1. Technology effectiveness.

ShotSpotter claims a 97% accuracy, having a false positive rate of 0.5%[3]. Accuracy and errors in technology are not absolute numbers, they need to be seen from a risk assessment perspective. In high risk and high impact scenarios, a perceived low error rate can be misleading and statistically inaccurate.

In this case and based on numbers reported by PPB via Open Data[4] on the number of shooting incidents since June 2020, monthly incidents fluctuate between 76 and 147. The total number of annual incidents in 2021 was 1319. This means that Shotspotter will have about 66 false positive reports per year. Given that this technology preempts law enforcement units expecting

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[1] https://www.portland.gov/fitcog/fitcog-members/shotspotter-recomendation
[2] https://efiles.portlandoregon.gov/Record/13945278/File/Document
[3] https://edgeworthanalytics.com/wp-content/uploads/2022/03/Shotspotter-2022-Accuracy-Study.pdf
[4] https://public.tableau.com/app/profile/portlandpolicebureau/viz/PortlandShootingIncidentStatistics/ShootingIncidentStatistics

lethal weapons present in the incident, the risk of having an unintended lethal encounter in those false positive detection can still be too high of a risk for the city.

The City of Oakland has highlighted the impacts of quick response to gunshots for providing first aid care to victims[5]. Identifying metrics that show how the technology helps to improve public safety or emergency response is very important to be able to justify the use of it.

2. Privacy reporting.

The recommendation refers to the Policing Project's privacy auditing and assessment of ShotSpotter, Inc.[6]. This report is dated July 2019 by the non-profit organization called the Policing Project hosted by the NYU school of Law[7].

On April this year, a group of NYU students and a coalition of other organizations demanded more transparency and accountability of the Policing Project and that NYU School of Law to cease to host and fund the organization[8]. The main reason for these requests is the discovery of funding sources from a number of police technology, weaponry, and surveillance companies, including Axon, Mark43, Shotspotter, Microsoft, and Amazon Web Services.

This situation compromises the neutrality of the Policing Project's privacy assessment of ShotSpotter due to an intrinsic conflict of interest.

However, the risks of collecting personal identifiable information are minimal. Shotspotter includes classification algorithms to detect gunshots only and their retention time is minimal as well. Shotspotter does not share raw audio data with customers.

3. Impacts on Civil Liberties and Civil Rights.

The Chicago Office of the Inspector General (OIG) released a report on August 24, 2021[9] alerting that the services provided by ShotSpotter rarely leads to evidence of a gun-related crime and that the presence of the technology changes police behavior, particularly the interaction with local residents.

Given that the highest number of gunshot incidents in the City are present in Portland neighborhoods where more Black and Latino families live, it is unavoidable that this technology will impact these communities and that inequitable impact needs to be regularly assessed.

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[5] https://cao-94612.s3.amazonaws.com/documents/Special-Meeting-Packet.pdf
[6] https://www.policingproject.org/shotspotter
[7] https://www.policingproject.org
[8] https://docs.google.com/document/d/1qHWVP2gPqirTFQDXhd4schKiJU9EAYiKsQqOkmC1Vns/edit
[9]
https://igchicago.org/2021/08/24/oig-finds-that-shotspotter-alerts-rarely-lead-to-evidence-of-a-gun-related-crime-and-that-presence-of-the-technology-changes-police-behavior/

Also, the presumption of the presence of lethal weapons in areas of detection may be used to justify stop-and-frisk actions on residents. Eroding public trust in Portland Police and impacting civil liberties and civil rights.

Different organizations have highlighted these issues including ACLU[10], EFF[11], and the MacArthur Justice Center[12]. The MacArthur Justice Center study was mentioned in the FIT-COG Recommendation, but was not fully considered.

In addition to ShotSpotter's issues, the FIT-COG recommendation includes the creation of a 'Violent Impact Player List'. This list may create additional civil liberties and civil rights impacts that need to be analyzed.

4. Ongoing legal issues.

ShotSpotter has been experiencing ongoing legal issues including a defamation lawsuit[13] against Vice News[14] and a recent lawsuit against the City of Chicago for misusing ShotSpotter data in the murder of a 65-year old black man named Michael Williams[15]. The technology is also linked to the killing of the 13 year-old latino child Adam Toledo[16].

ShotSpotter has been held in contempt of court[17] in this lawsuit, as a request of a ShotSpotter attorney, to prevent ShotSpotter from being compelled to release documents about how it assesses gunshot alerts. This action raises concerns regarding the level of transparency required in this high risk-high impact surveillance technology.

5. Missing information.

The recommendation did not include specific information about the costs involved in using this technology. A ShotSpotter FAQ from 2018 includes information about the cost: 'The cost for ShotSpotter is $65-90k per square mile per year, with a $10K per square mile one-time Service

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[10] https://www.aclu.org/news/privacy-technology/four-problems-with-the-shotspotter-gunshot-detection-system
[11]

https://www.eff.org/deeplinks/2021/08/chicago-inspector-general-police-use-shotspotter-justify-illegal-stop-and-frisks
[12]

https://www.macarthurjustice.org/shotspotter-generated-over-40000-dead-end-police-deployments-in-chicago-in-21-months-according-to-new-study/
[13]

https://www.shotspotter.com/press-releases/shotspotter-responds-to-false-and-misleading-allegations-by-vice-news/
[14] https://www.vice.com/en/article/qj8xbq/police-are-telling-shotspotter-to-alter-evidence-from-gunshot-detecting-ai
[15] https://apnews.com/article/gun-violence-technology-crime-chicago-lawsuits-3e6145f63c96593866cf89ac01ce7498
[16]

https://chicago.suntimes.com/news/2022/7/21/23273332/shotspotter-lawsuit-chicago-police-toledo-shooting-michael-williams-arrest-charges-dropped
[17] https://chicagoreader.com/news-politics/shotspotter-held-in-contempt-of-court/

Initiation fee.' [18]. Different Cities report different operation costs that go from about $200K to several million dollars.

Condition E of the recommendation requests PPB to invest in comprehensive data collection and analysis of ShotSpotter technology. The request is vague and does not recognize the fact that PPB already has expertise and infrastructure for managing, processing, and protecting data.

The recommendation also includes different comments on sensor location. Any sensor or technology owned by the City should be transparent and accessible for maintenance. In addition, sensors should not be placed on commercial or private property.

The City should expect a minimum quality of service from technology vendors that assures the quality of services for the purpose of such technology and the fulfillment of the public need and interest.

Conclusions and final comments

The City needs to rely on technology trusted by the community and City Staff. Working with ShotSpotter may involve high investments in training, community involvement, and city staff time.

The level of accuracy of the technology might not be enough due to the high risk and high impact and the involvement of lethal force in responding to sensor detection.

The use of this technology may add legal risk due to lawsuits connected to the use of this technology. Legal fees and staff time connected to potential legal actions should be considered.

The business model of ShotSpotter may push the cost of the technology considerably high in order to reach the required effectiveness. The costs are linked to square miles of coverage and potentially not include additional costs for installation, training, data analysis, communications, and community outreach.

Our team recommends a deeper Privacy Impact Assessment of the technology to better understand risks, impacts, and explore mitigation strategies to reduce them.

[18] https://www.shotspotter.com/system/content-uploads/SST_FAQ_January_2018.pdf

Credits

Prepared by Hector Dominguez, Open Data and Privacy Coordinator, Smart City PDX Program
Reviewed by Judith Mowry, Office of Equity and Human Rights senior policy adviser, and Kevin Martin, Smart City PDX program manager.
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About the Smart City PDX program

The Smart City PDX program is part of the City of Portland Bureau of Planning and Sustainability. This program coordinates the citywide work on data governance, open data, privacy, and surveillance technologies. For more information about the program visit
https://www.smartcitypdx.com

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Contact: smartcitypdx@portlandoregon.gov

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