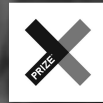Catalyzing Police Reform Through Community Data & Police Incentives

XPRIZE
RACIAL EQUITY
ALLIANCE X TKS

Executive Summary

The Problem.

Police misconduct stems from a lack of police accountability.

The lack of police accountability in the current criminal justice system comes down to three factors:

1. Because of the extreme decentralization of the US's policing system, it is **difficult to track flagged officers**.

2. For this same reason, **implementing feedback** from those communities most affected is inconvenient.

3. Individual officers are n**ot penalized for misconduct**, and departments are **not held financially responsible**.

The Opportunity.

Measures can be put in place to benefit the police-community dynamic.

Policing data and record-keeping of police misconduct instances can be **managed much more effectively**. By emphasizing the importance of data, we can accurately **reflect the behaviour of police**.

Furthermore, by streamlining data, police departments can take more **informed steps in managing their officers**.

Data regarding police officers and its subsequent analysis can be the key to **catalyzing police reform and bolstering community trust**.

Our Solution.

A 3-part technical approach to police reform that compounds into an effective mechanism.

We will use **data provided by the community** regarding individual instances of police misconduct to **form a database** in which police misconduct **reports are organized and publicized**.

This information then serves as the basis for **evaluating individual officers** and thus departments as a whole. Objective analysis on individual police officers, done by a **machine learning model**, can then be used by police departments to **enact disciplinary measures on officers** that have histories of poor conduct.

Instead of having taxpayers pay for misconduct settlements, we will push for policy change that makes **police departments financially responsible** for their officers' cases. In turn, police departments will face the threat of losing money in police misconduct settlements if they do not **intervene with police officers** that are likely to commit misconduct.

Current Problems

A dysfunctional system that lacks accountability and repercussions.

Lack of Accountability

Minimal Repercussions

Officers that commit misconducts face minimal repercussions. Civilians are two times more likely to get **convicted and incarcerated** than police. Police have killed over 17,000 people since the beginning of 2005, however, only 121 have been charged with murder.

Police can stick around for years after having **committed multiple misconducts**. Derek Chauvin, the officer who killed George Floyd, was involved in at least 18 police misconduct cases prior to the George Floyd incident.

Cities have spent more than **$3 billion** to settle misconduct lawsuits over the past 10 years. Departments have **no incentive** to limit the number of court proceeding against police because the **city pays** the settlement cases in full. Consequently, the number of settlement cases has steadily grown in past years.

700K

There are **700,000 full time officers** across 50 american states. Every state monitors policing infractions different. The current system lacks continuity of policy because its decentralized, making it difficult to track flagged officers across the country. Consequently, there's **no central policing body** that monitors and records the number of officer **infractions** and misconducts.
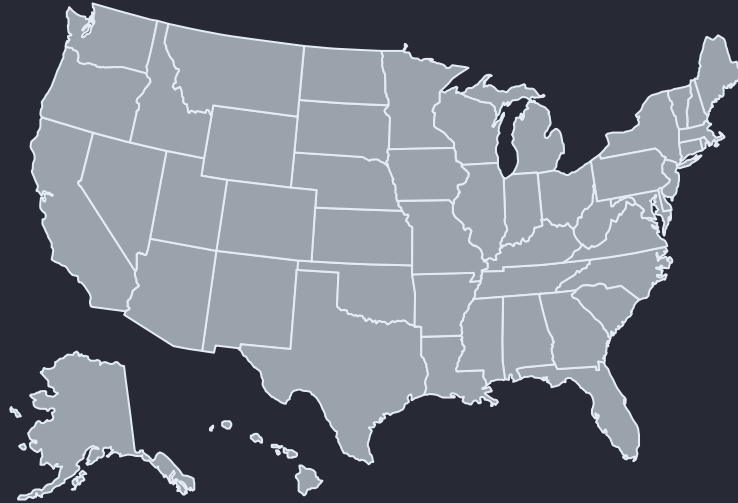
60 Days

Current methods of citizen feedback and criticism are unnecessarily **difficult and inefficient.** On average it takes 60 days to process an officer complaint and rarely are the complaints validated. Often, complaints are discarded and neglected by precincts.

Minorities: African-Americans

Disproportionate Contact

Greater surveillance and penalization have contributed to a system of mass incarceration and institutionalized racism.

"Disproportionate killing is a function of disproportionate police contact among members of the African-American community."

Community Attitude

A community's attitude towards certain populations affects how police behave towards them.

"… The disproportionate killing of Black suspects is a downstream effect of institutionalized racism … within many police departments."

Dr. Charles E. Menifield, Dean of the School of Public Affairs and Administration at Rutgers University

27%

51% of people have confidence in the police. For Black people, that number plummets to 27%.

40

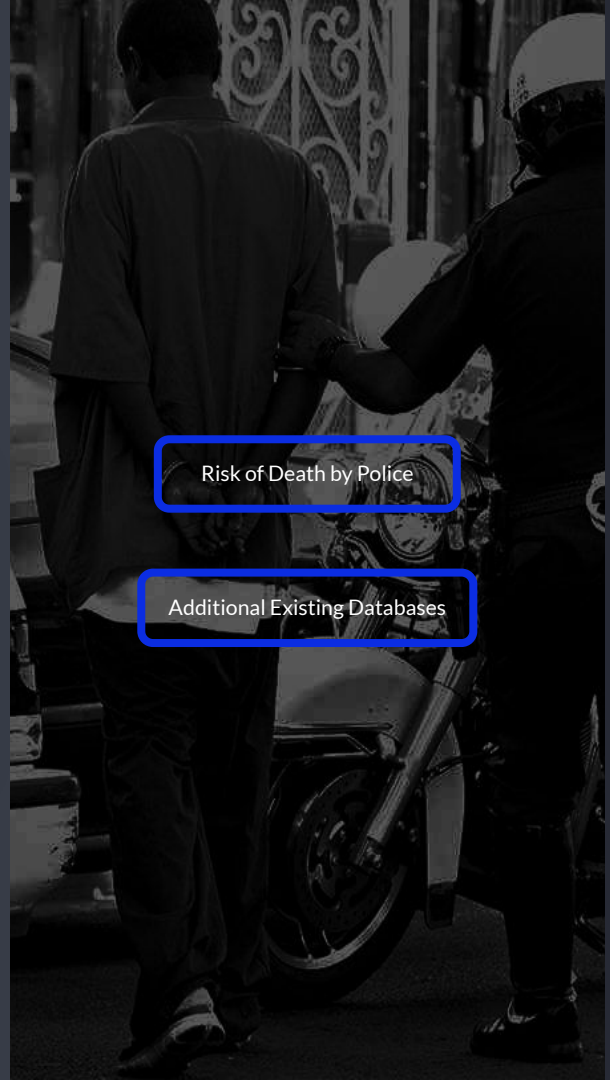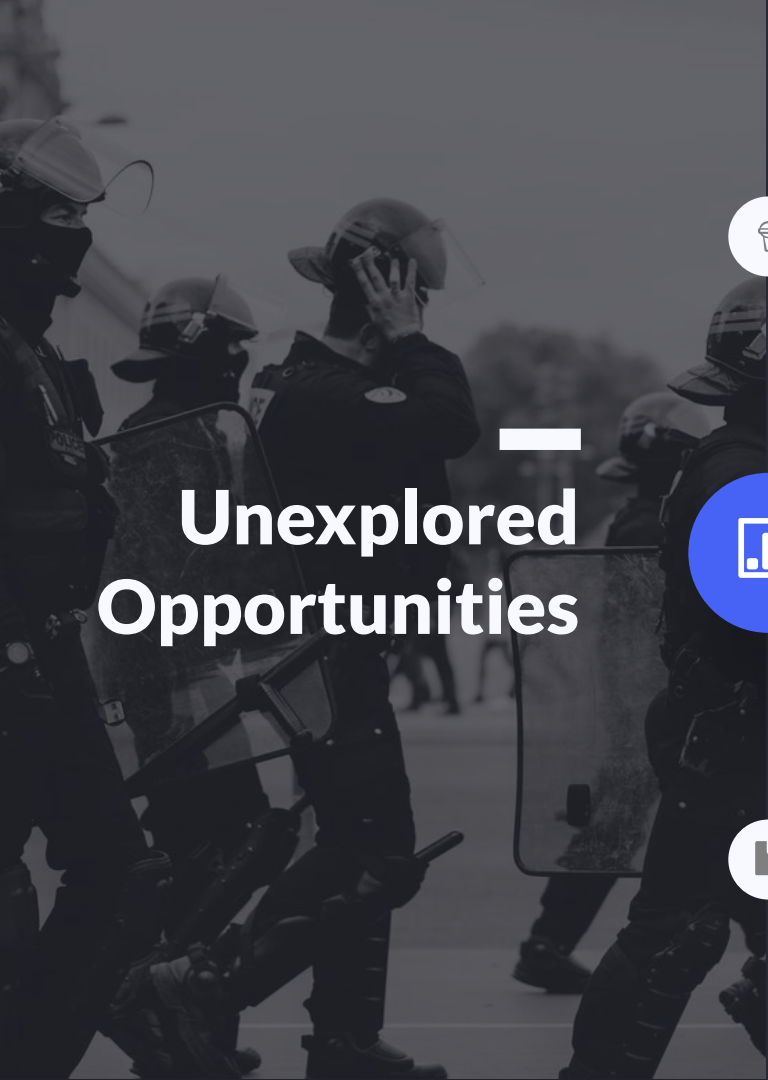A Black person is killed about every forty hours by an officer.

28%

Even though only 13% of Americans identify as Black, 28% of people killed by police are Black.

Risk of Death by Police

Additional Existing Databases

Unexplored Opportunities

Raising Minority Voices

Community trust in police is low, especially in **minority groups**. Often underrepresented and unheard, they are most affected by police brutality.

We can empower these people by helping them project their voices through **community input mechanisms** that bring attention to their needs.
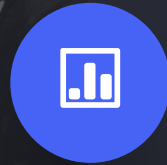
Streamlining of Data

Due to the extreme fragmentation of the United States justice system, there is no standardized database for police records. Most of our current records are kept up by investigative journalists.

There is bipartisan support for creating a national database of so called "bad apples," police with records of misconduct. Collecting use of force data additionally, in itself, reduces police killings by 25%.

Policy Implementation

Improving on de-escalation training, shifting police success metrics from arrests to crime avoided, and redirecting economic and social pressures towards police departments.

Policy-based reforms will help shift the consequences of police misconduct onto their perpetrators, providing incentive for increased accountability.

NYPD Case Study

The NYPD serves as a model for the problems we have seen across the nation.

5.44B

2022 Proposed Expense Budget

5.5% of cities total budget. 94% funded through city tax-levy funding.

68.7M

Budget Additions for New Needs

The NYPD has recently been investing new needs that range from new civilian positions to Information Technology Bureau Needs.
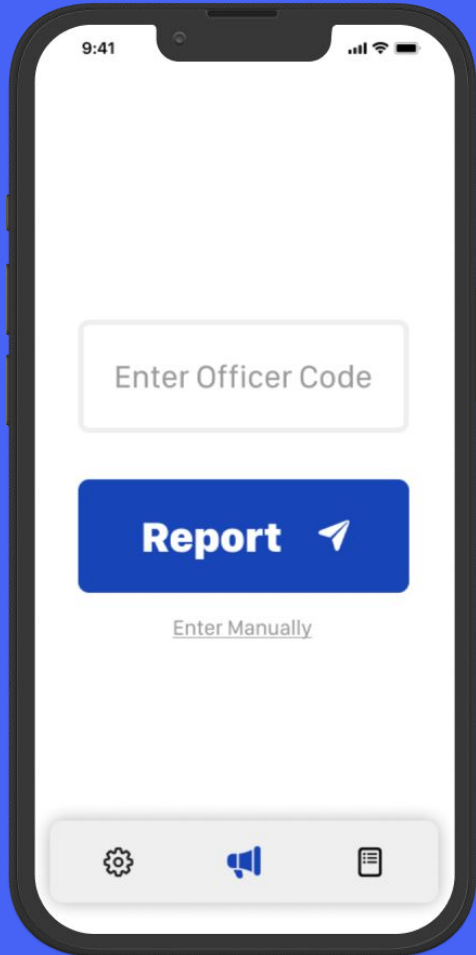
1.5B

Capital Plan & Budget

This budget is broken up between five categories ranging from customer relationship management applications to air-sea rescue helicopters.

Citizen Complaint Filing System

Citizens can report police misconduct and abuse of powers through two paths: automatically and manually.

Automatic

Through the automatic process, the citizen can enter the code of the officer, and the location, date, and time of the incident will be automatically. In addition, through bluetooth technology, which has an approximate range of 10 meters, the witnesses in the 10 meter vicinity of the incident will be notified for validation of incident. Through this track, the citizen can easily report a complaint in a short time.

Manual

The manual process is designed to allow the victim to enter the information once they are sure they are within a safe environment. They can manually enter the information, including the officer code, location, date, and time. With this, however, the only factor that can be used to validate the complaint is the location of officer in that time and date. This track limits the potential validity of the event.

Software Application Mockup Simulator

Enter Officer Code

Report ✈

Enter Manually

9:41

Citizen Complaint Filing System

Using different factors, such as the location of the officer in that instance, assigned region of the officer, and potential witnesses, the complaints are either validated or denied by an algorithm.

The police officer's data is not publicly disclosed, since that may cause public safety, however, the number of witnesses who validated and denied the incident are indicated anonymously. Based on those factors, the complaint will either be validated or denied. All complaints will be saved in the database, however, the validated complaints will have more value in the algorithm to detect abusive police officers over a longer period of time.
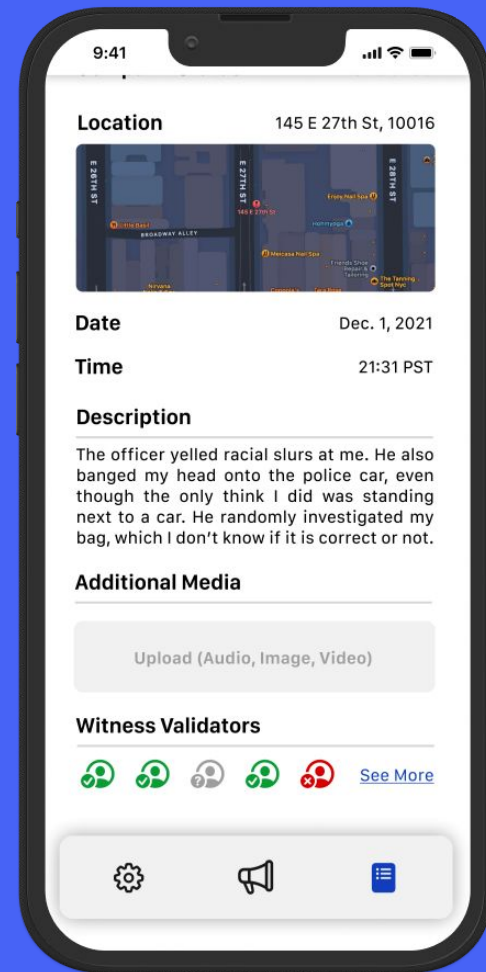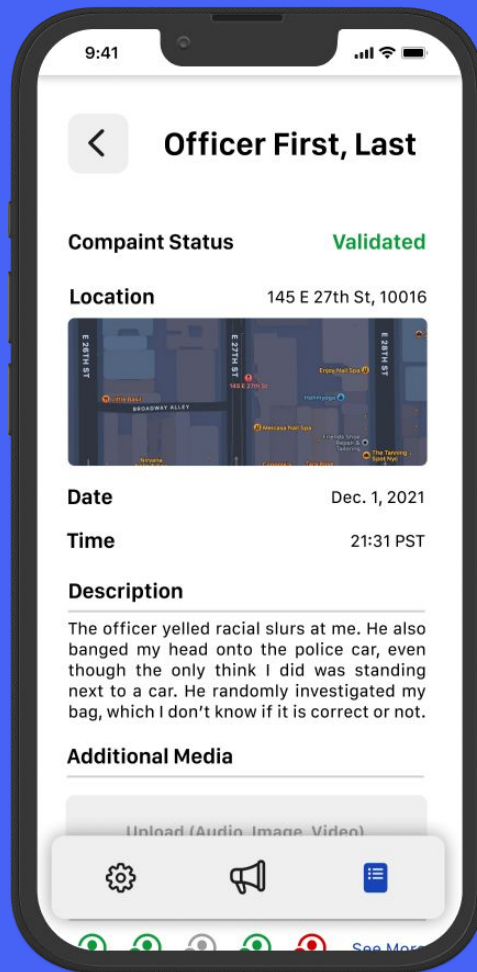
Officer Flagging Model

A machine learning model that predicts patterns of police officer misconduct over an extended period of time.

Current flagging mechanisms that are being utilized in various police departments flag officers based on potential instances of misconduct. However, it has been seen that the **thresholds that flag these officers** diminish the quality of the data.

We will utilize information from our **civilian complaint database** in order to provide the most relevant and up-to-date inputs for the model. This model will then serve as a public mechanism by which police departments and courts can interpret an officer's entire history of misconduct.

Model Logistics

The model will utilize **machine learning binary classification** methods. The model aggregates all the existing data on officers potentially related to misconduct and uses it as inputs. We will use an **Extra Trees** binary classification model to determine an officer's level of misconduct based on the model's inputs. Although similar to a Random Forest model, Extra Trees randomizes the cut points of its decisions. In addition, we will **utilize far more parameters** in our datasets than current intervention algorithms.

75%
increase in true positive predictions

20%
decrease in false positive predictions

9%
decrease in false negative predictions

Based on similar model backtesting that is then compared to predictions made by current flagging mechanisms that are being used nationwide

3 Main Input Factor Sets

1 | Officer Profile Factors

The analyzing of officer complaints, prior convictions, and other high percentage indicators. For instance, there exists a very high correlation between an officer's misconduct levels and their education level.

2 | Specific Instance Factors

Instances in which certain events led to officer misconduct or use of force. Every indication of police misconduct must be interpreted in context based on the action's validity. If force was used in order to deter crime, it would not affect an officer's history in the same way it would if force was used during a routine traffic stop.

3 | Area Factors

Jurisdictions that contain neighborhoods with higher crime rates or that are more impoverished often result in more cases of officer use of force. An officer's area of operation can potentially increase their likelihood of being involved in police misconduct.

Police Department Incentive

Shifting the burden of victim payout in police misconduct settlement cases to police departments.

Average Police Misconduct Settlement Amount per Case (USD)

360K	700K	800K
Los Angeles	Milwaukee	Springfield, MA
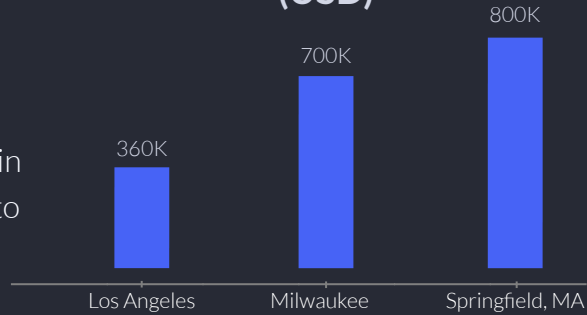
Joanna C. Schwartz

UCLA Professor of Law

"I've found basically that jurisdictions don't make much effort at all to learn from these lawsuits," she said. "There's just no pressure for them to learn from them and then there's no pressure to keep track of the data."

1

A Lack of Change

Police departments are able to continuously get away with the misconduct of their officers. Departments do not face any repercussions that warrant a change in their internal policy.

2

Altering the Process

As opposed to allowing for cities to pay for civilian settlement fees using taxpayer dollars, police departments should face the burden of allocation their own finances towards these lawsuits.

3

Creating Change

If police departments must carry the financial responsibility for each of their officers' settlement cases, they will be more likely to implement measures that prevent and discipline acts of misconduct.

Police Intervention

Once departments receive data from our algorithm, they can use **intervention methods** that serve as an alternative to just firing officers or simply disregarding the issue. **VR simulators** are a great example of an intervention method.

Saving Time and Money

Police departments spend thousands of dollars setting up training. But many of the methods currently used for officer training are inefficient and can waste time. VR simulators have the perk of being pre-setup, so the coordinating and logistics are taken care of and these simulators are made by experts in the field making them more efficient and leading to reduction in risks.

Emphasis on De-Escalation

A survey of 47 of the largest U.S law enforcement agencies between 2015 and 2017 found that 39% changed their use of force policies in 2015-16 and revised their training to incorporate tactics such as de-escalation. Among the agencies surveyed, officer-involved shootings dropped by 21% during the study period. Many VR training simulators emphasis the practice of this skill by allowing officers to put the skill to use in a variety of realistic situations.

## Consistent Quality Training

According to the NCBI, "police academy training is not standardized across the United States. The curricula in academies vary by state and often even by academy within a state". VR simulators have the perk of being not only immersive, but also completely digital, allowing departments to get quality training simulations that are consistently used by officers across the nation.

Policy Changes Required

The settlement payment should come from police department budget, instead of using taxpayer budget's from the city. This will incentivize police departments to further train their officer and to discipline their officer to reduce misconduct.

> Civilian payouts for police misconduct put a strain on local governments and absolve police officers of culpability. Current law enforcement protocols hold officers internally accountable, but they are not externally held accountable to the communities they serve.
>
> **~ Rashawn Ray**
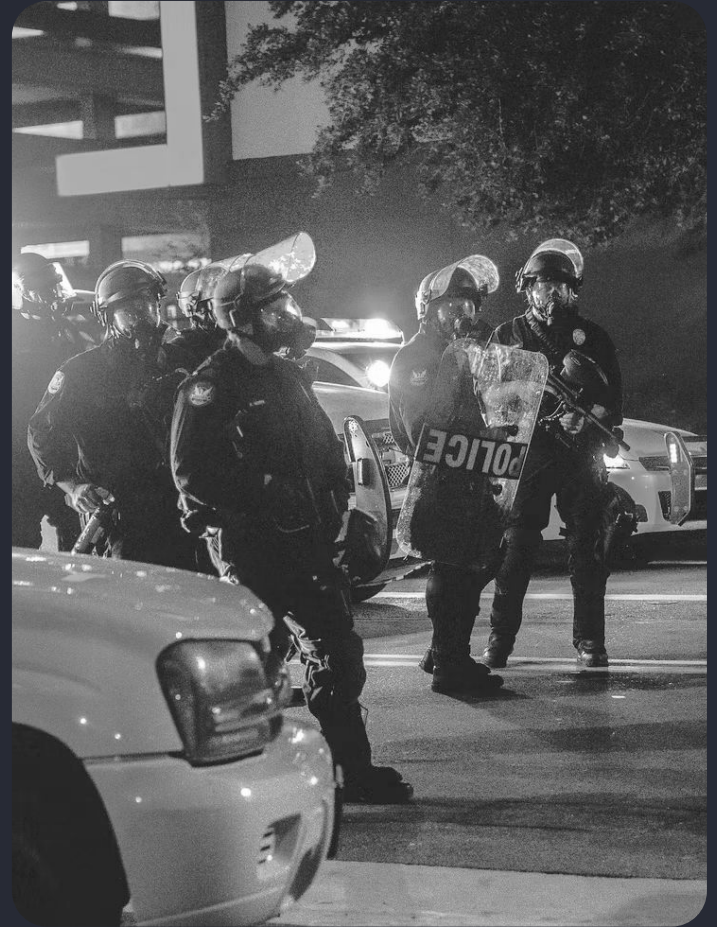
Recommendation Overview

Community Complaint

Gathering data on officers in the form of complaints. Ensuring that this process is **accessible, publicized, and accurate**. By providing this platform, we **increase community trust**, as civilians are the basis for the fight against police misconduct.

Officer Flagging Model

Identify which officers have the **highest chance of committing misconduct** in the future based on data indicating instances of **poor conduct in the past**.

Police Department Intervention

Police departments can utilize the Officer Flagging Model in order to **identify the officers they need to keep in check**. Effectively, they will be able to take the most optimal measures in order to **decrease misconduct cases** from within their department.

Policy Changes

As opposed to using taxpayer money to fund the settlements of police misconduct cases, that **financial burden will be placed on the police departments** that are actually responsible for their constituents' poor behavior.

CASE STUDY: CITIZENS POLICE DATA PROJECT (CPDP)

The Invisible Institute sued the Chicago Police Department (CPD) to make citizen formal complaints public and transparent. They won the battle, eventually designing and creating CPDP, a platform where data on police misconduct in Chicago is publicly disclosed.

The work of Invisible Institute and CPDP relates to our goal in this project, since it requires the publication of police complaint data and granting the public the ability to analyse data and speak out against injustices..

Challenges

Invisible Institute had to fight in a court battle, and receive a court order for them to access police data and continue with the development of CPDP.
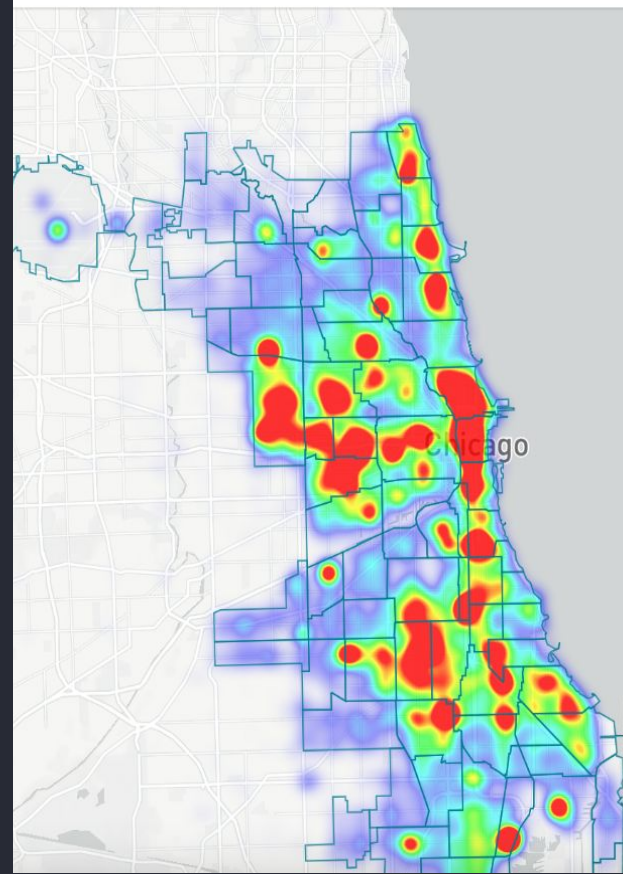
Our Scenario

In our case, there will need to be certain changes in police law and regulations for us have access to police data in different states, and to be able to present and analyse those data using an algorithm.

CPDP Platform

SHORT-TERM TIMELINE

Software Application is Published

People can begin reporting misconduct through the app. The information will be stored in the database.

Policy Change Requests

It will be requested from governments and police departments to change certain policies.

Now

User Engagement Increases

The engagement of general public with the software application will increase, recording, transparently and anonymously, police misconducts.

First 6 Months

5-10 Years

Policy Change Occurs

We predict that policy changes making police departments accountable for court settlements will occur in the coming years. When this occurs, we can begin the the integration of the system with police departments to begin incentivizing the reduction of misconduct.

>10 Years

Police Departments Using Intervention

Once there is enough data and the abusive officers have been flagged, police departments will be forced to take interventive actions to reduce misconduct.

LONG-TERM TIMELINE

Experts to Contact for More

Rashida Richardson

Attorney Advisor to the Chair at FTC

Reach out to learn more about the social implications of data-driven tech as it pertains to racial justice.

Dr. Luan Pannell

Director of Police Training and Education

Reach out to learn more about best practices in police training and the evaluation of training curricula.

Clark Neily

Senior CP for Legal Studies at Cato

Reach out to learn more about constitutional law, overcriminalization, and police accountability.

Seth W. Stoughton

Professor of Law, Criminology, and Criminal Justice

Reach out to learn more about police law & policy, criminal procedure, criminal law, and writing policies to govern the use of new technologies,.

Philip M. Stinson

Professor of the Criminal Justice Program at BGSU

Reach out to learn more about police crime and integrity, quantitative content analysis, and program evaluation.

Andrew Fan

COO of Invisible Institute

Reach out to learn more about the process of publicizing police data in Chicago and creating CPDP.

Thank You!

Team XPRIZE,

We are incredibly grateful for this opportunity to present our police reform recommendation to you all. Throughout this process, our understanding of the United States policing system has grown tremendously.

As high school students, we repeatedly hear about policing injustices throughout our communities and in current events. We appreciate the resources and time you have dedicated to helping us build this project!

We hope that our recommendation proves valuable to XPRIZE and its Racial Equity Alliance.

Thank you!
Ciara, Selin, Omar, Rohan, Rodin

Omar Soliman

Ciara Sejour

Rohan Daggubati

Selin Filiz

Rodin Shokravi

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All the additional content.
In one place.

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