

What Works Cities

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SUMMIT ON
TRANSFORMING
DATA
≡ INTO ≡
ACTION

1

Criminal Justice



GovEx

How does Charlotte predict adverse police interactions?



All Officers



Current EIS Model



DSSG Model



Perfect Model



Officers who will not have an adverse interaction



Officers who will later have an adverse interaction

The role of leadership

Mayor

championed Charlotte's role as a "smart city" using data and evidence to inform decisions

Officer Focus Group

Helped the project team navigate the initial opposition, including their own, and contributed insights from years on the job that drove a better model

Police Chief(s)

One persuaded city council to greenlight the project promising to balance public need & officer privacy, the other continued the project and set it up for success internally

City Council

voted to work with a group of data scientists to develop a sophisticated system for predicting when officers will have adverse interactions

The White House

Launched the Police Data Initiative to mobilize leading jurisdictions to take action on data and technology recommendations from the Task Force on 21st Century Policing

The role of data

What am i looking at?

These five officers will go on to have an adverse incident. The darker the red, the stronger the importance of that predictor.

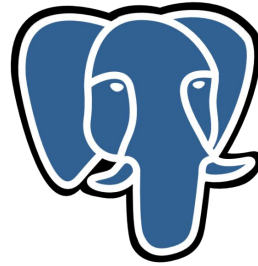
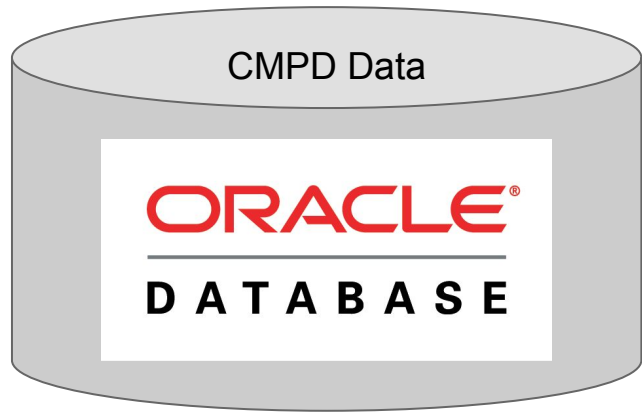
How did they figure it out?

Operational Data + Contextual Data -
Private Data = Testable Features.

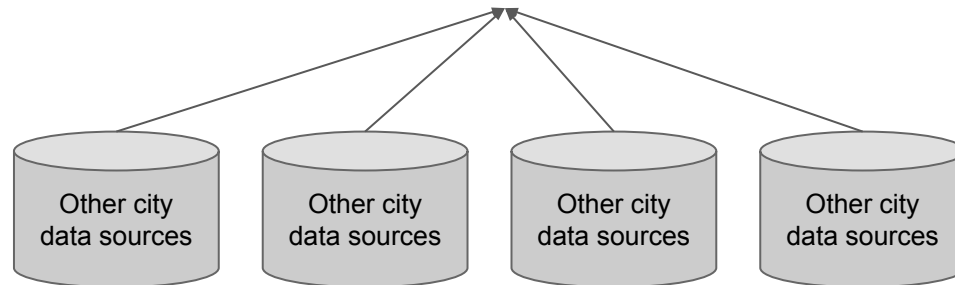
- Internal Affairs
- Dispatch Events
- Criminal Complaints
- Citations
- Traffic Stops
- Arrests
- Field Interviews
- Employee Records
- Secondary Employment
- Training
- Existing EIS

Officer 1	High number of rule of conduct violations in last 15 years	Officer was suspended in last 15 years	High number of counseling interventions after special investigations	High number of sustained complaints in the last 15 years
Officer 2	High number of counseling interventions after special investigations	High number of rule of conduct violations in last 15 years	High number of prior adverse incidents in last 15 years	High number of special investigations correctives written in last 15 years
Officer 3	High number of complaints against officer in last 15 years	High number of rule of conduct violations in last 15 years	Officer was suspended in last 15 years	High number of counseling interventions after special investigations
Officer 4	Officer has dealt with high number of domestic violence incidents	High number of special investigations correctives written in last 15 years	Officer was suspended in last year	High number of accidents in last 1 year
Officer 5	Officer has dealt with high number of suicide incidents	High number of preventable accidents in last 1 year	Officer uses weapons often	Officer was suspended in last 15 years

The role of technology



PostgreSQL

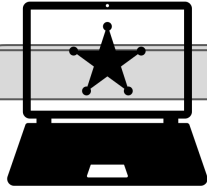


The methodology

CMPD collected lots of data for over ten years.



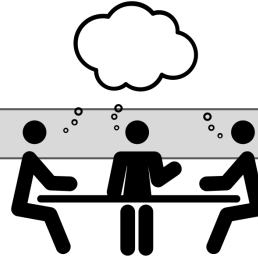
Analyzed existing EIS benefits/limitations



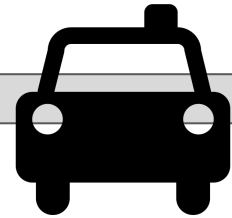
Interviewed Officers



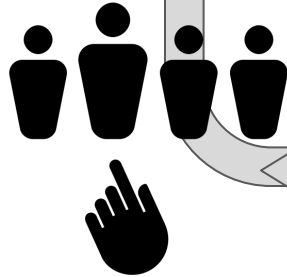
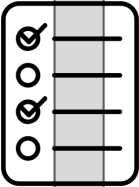
Interviewed other Experts



Participated in Ride-Alongs

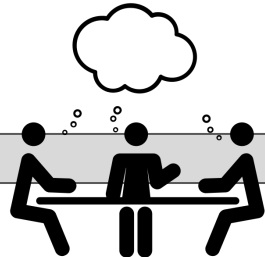


Identified potentially predictive features



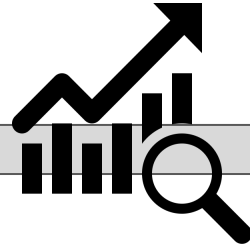
Produced more accurate identification tools for CMPD

Discussed findings with front-line experts



Created by Jessica Lock from Noun Project

Analyzed Results



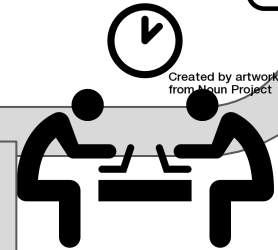
Created by Rflor from Noun Project

Refined computational model



Created by Richard Slater

Built machine learning model



Created by artworkbean from Noun Project

The role of people

The Project Team	Executed the data science project as a fellowship program
Project Manager	Managed the relationship with the police department and ensure project milestones were met.
Technical Mentor	Served as a technical advisor with strong background in Data Science, Computer Science, Stats, Social Science, or Public Policy and several years of real-world experience.
Fellows	Leverages programming, statistics and data analysis skills to mine the data, generate insights, and build predictive models
The Police Dept	Championed the project and provided access to the subject matter experts and data needed to execute the project
Officers	Provided expert advice, feedback and conducted ride-alongs with the project team over a two-day period. They shared anecdotes about the factors contributing to officer mistakes on the job.
Internal Affairs	Explained the department's process and criteria for declaring an event "adverse:" every time an officer uses force, is involved in a vehicle accident, takes part in a pursuit, violates a rule of conduct, sustains an injury, or faces a complaint from a citizen or another officer.
Computer Technology Support	Lead the IT initiatives within the police department and provided subject matter experts about the data they collected and how to interpret it. Weekly contact with this team.

Summary of Key Insights and Replication Considerations

- Existing Threshold models have four problems:
- Buy-in within the police department is critical
- Culture of transparency about adverse events
- The model is only as good as the data
- Expert advice from officers on the front lines
- Added contextual data to refine the predictions
- False positives matter
- You can also use this to identify those who model good behavior

To learn more about this project

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