

UrbanTech Solutions: Transforming Cities

Identify Opportunities. Design
Innovative Solutions.

AGENDA

UrbanTech Business Overview

Key Business Challenges

The Solution

System Design and Integration

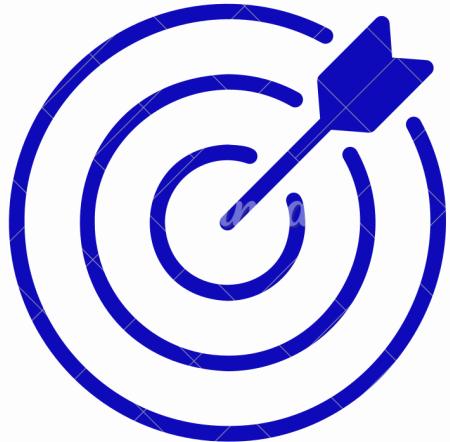
Ethical and Reflective Insight

Driving Business Impact

Cost Benefit Analysis and Challenges

Realising Benefits and Conclusion

URBANTECH BUSINESS OVERVIEW



Mission:

To revolutionise urban safety through data-driven solutions, enabling cities to optimise resources, improve public safety, and enhance quality of life using advanced analytics and smart technologies.



Vision:

To lead the future of smart cities by creating safer, smarter, and more resilient urban environments through innovative technology and data-driven decision-making.

KEY BUSINESS CHALLENGES



John submits a complaint by calling 311

Complaint logged in NYC 311 database
Lost among millions of other calls

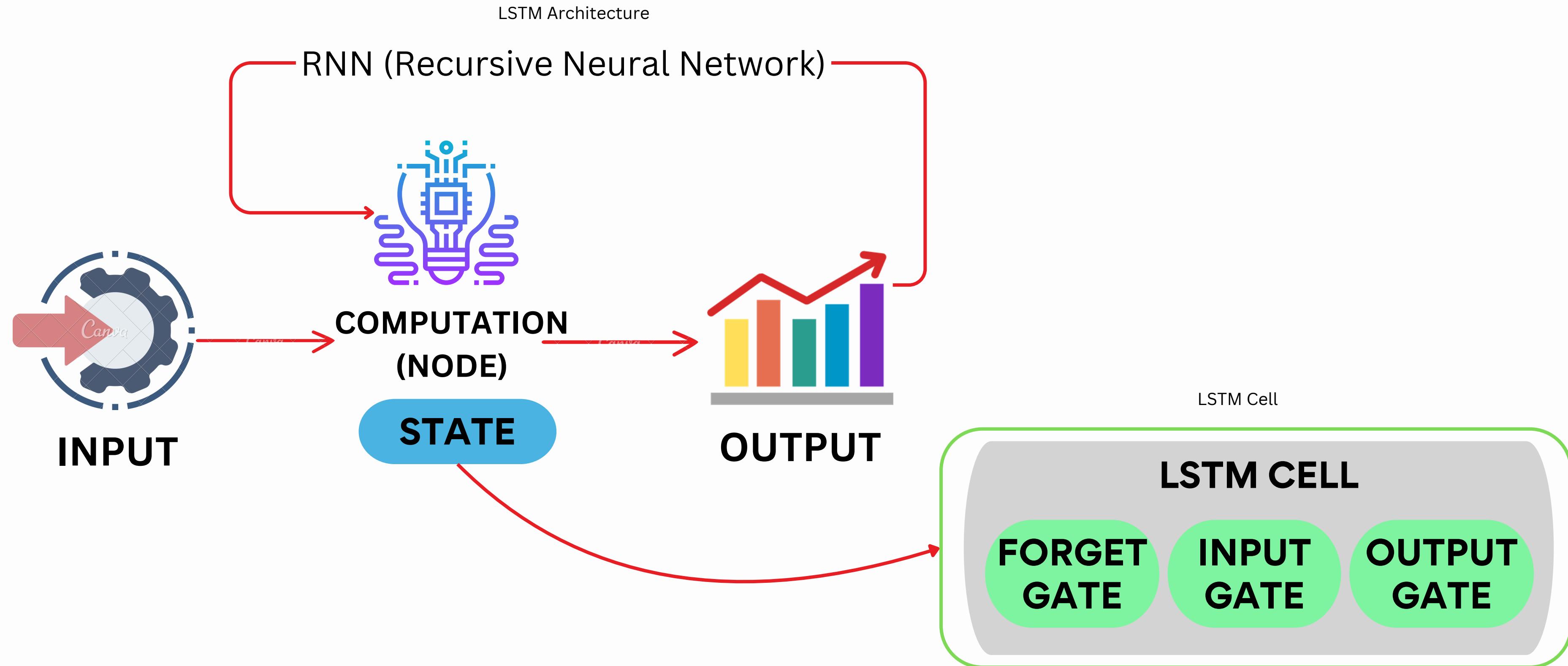
↓
John receives generic confirmation
No info on wait times or prioritisation

↓
No change in pothole condition

↓
John left frustrated and disillusioned
No resolution or feedback mechanism

THE SOLUTION

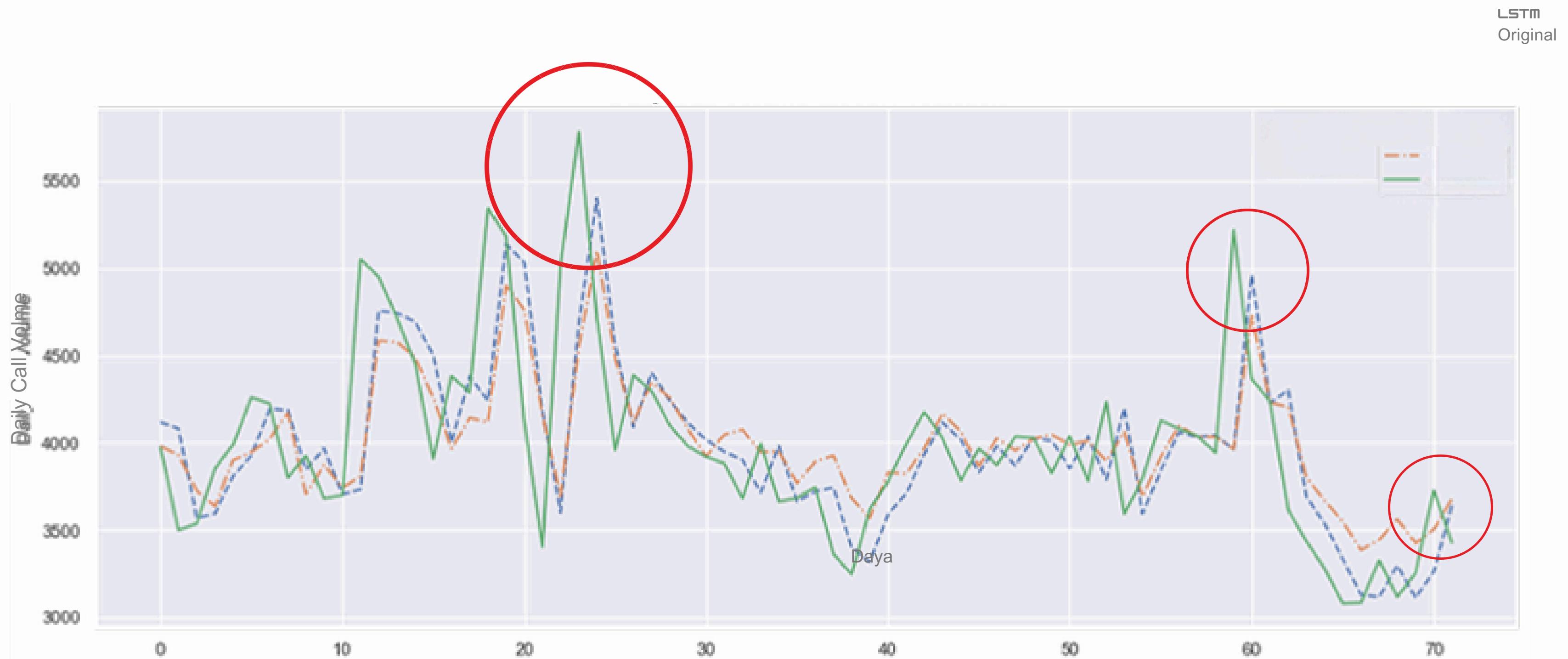
Long Short-Term Memory (LSTM)



THE SOLUTION

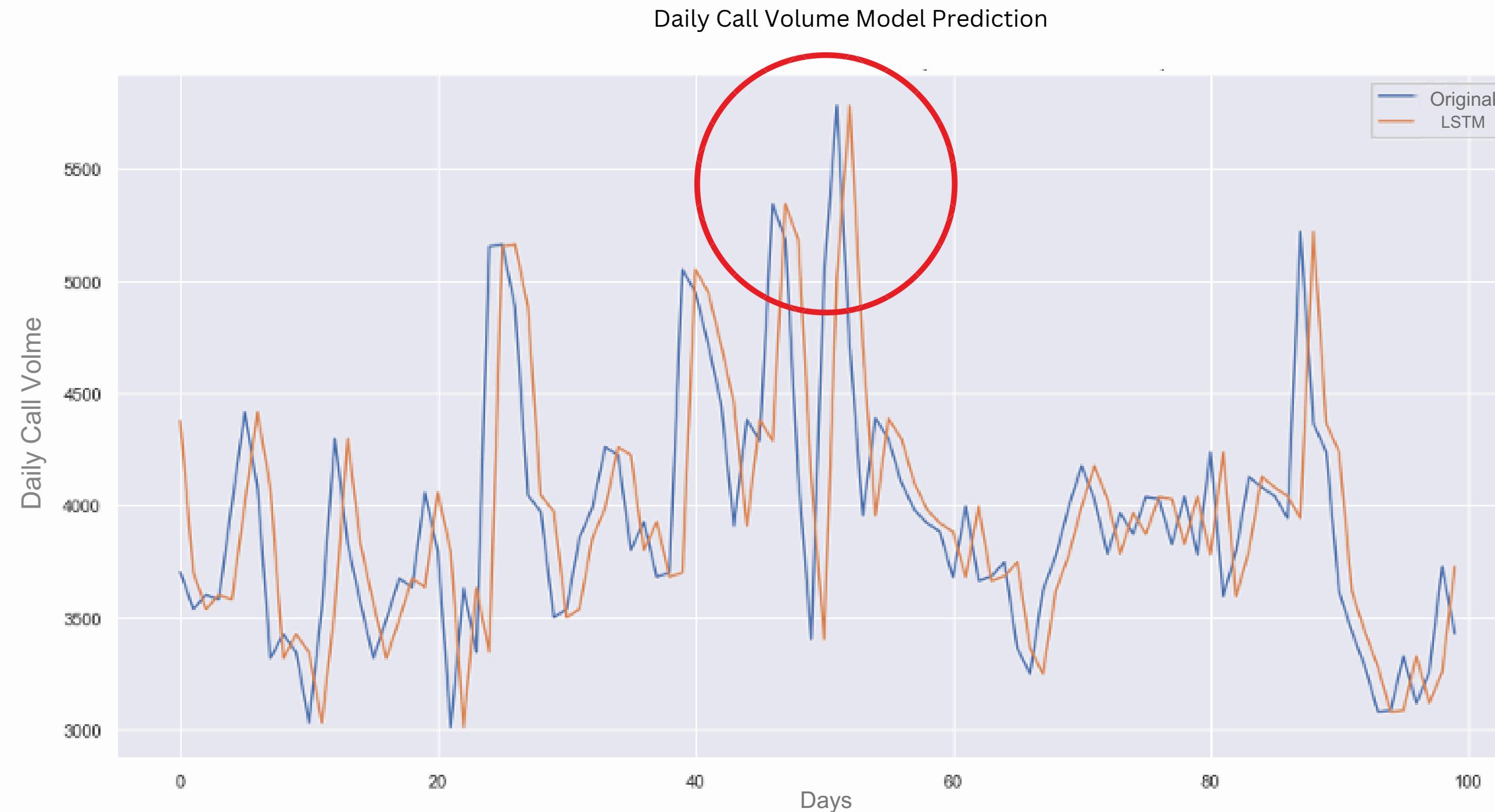
Long Short-Term Memory (LSTM)

Daily Call Volume Model Prediction



THE SOLUTION

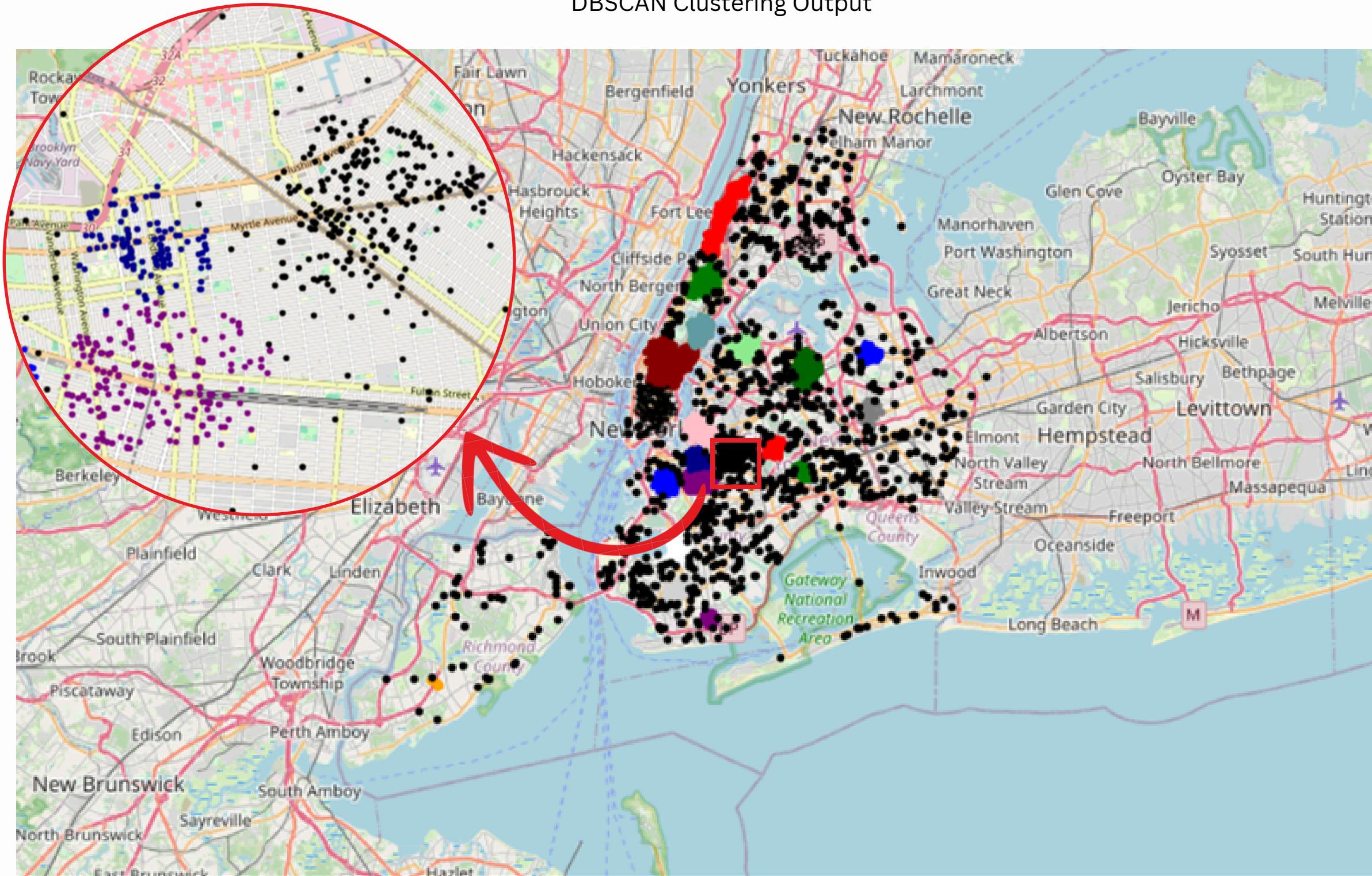
Long Short-Term Memory (LSTM)



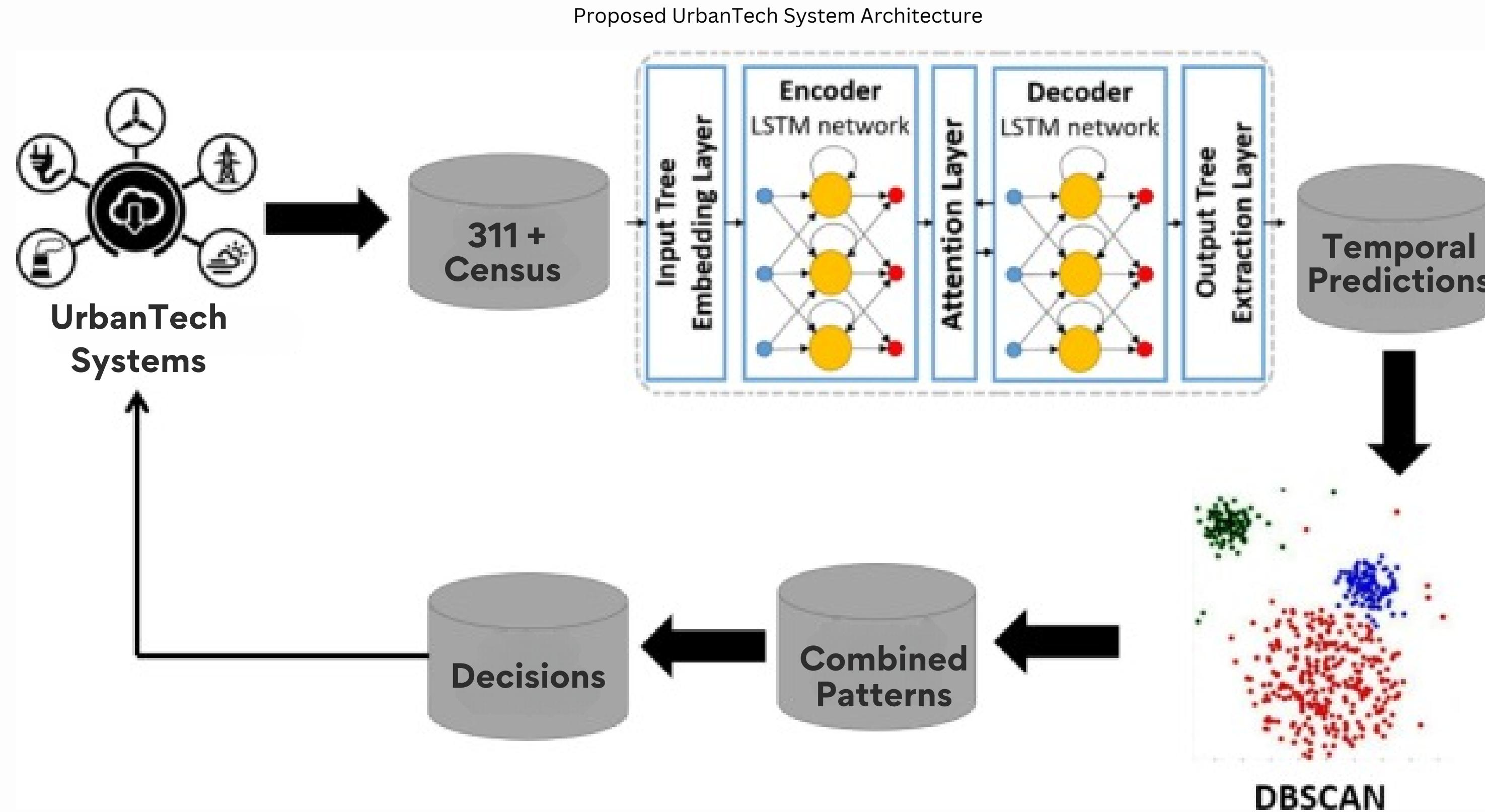
THE SOLUTION

Density-Based Spatial Clustering of Applications with Noise (DBSCAN)

DBSCAN Clustering Output

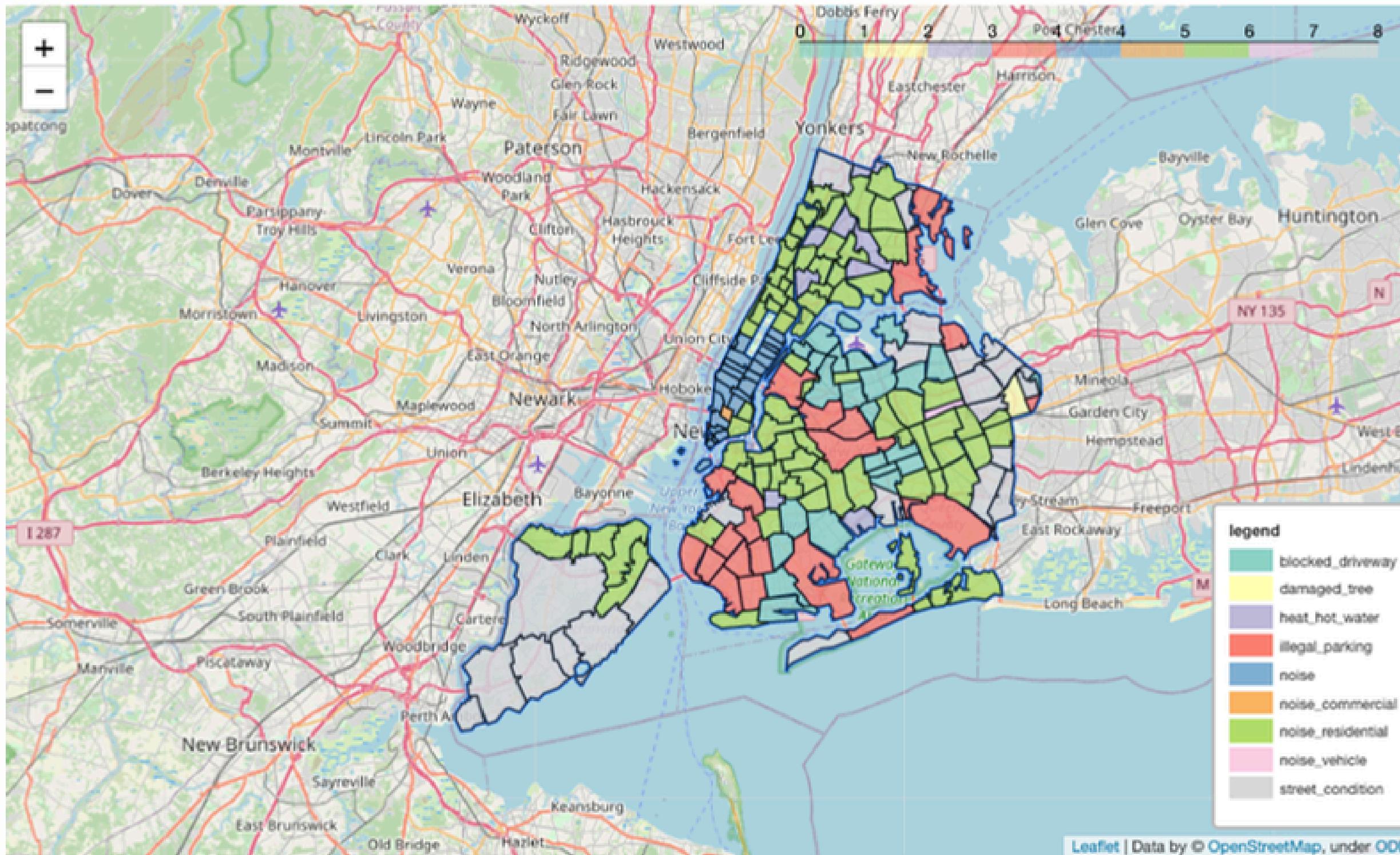


SYSTEM DESIGN AND INTEGRATION



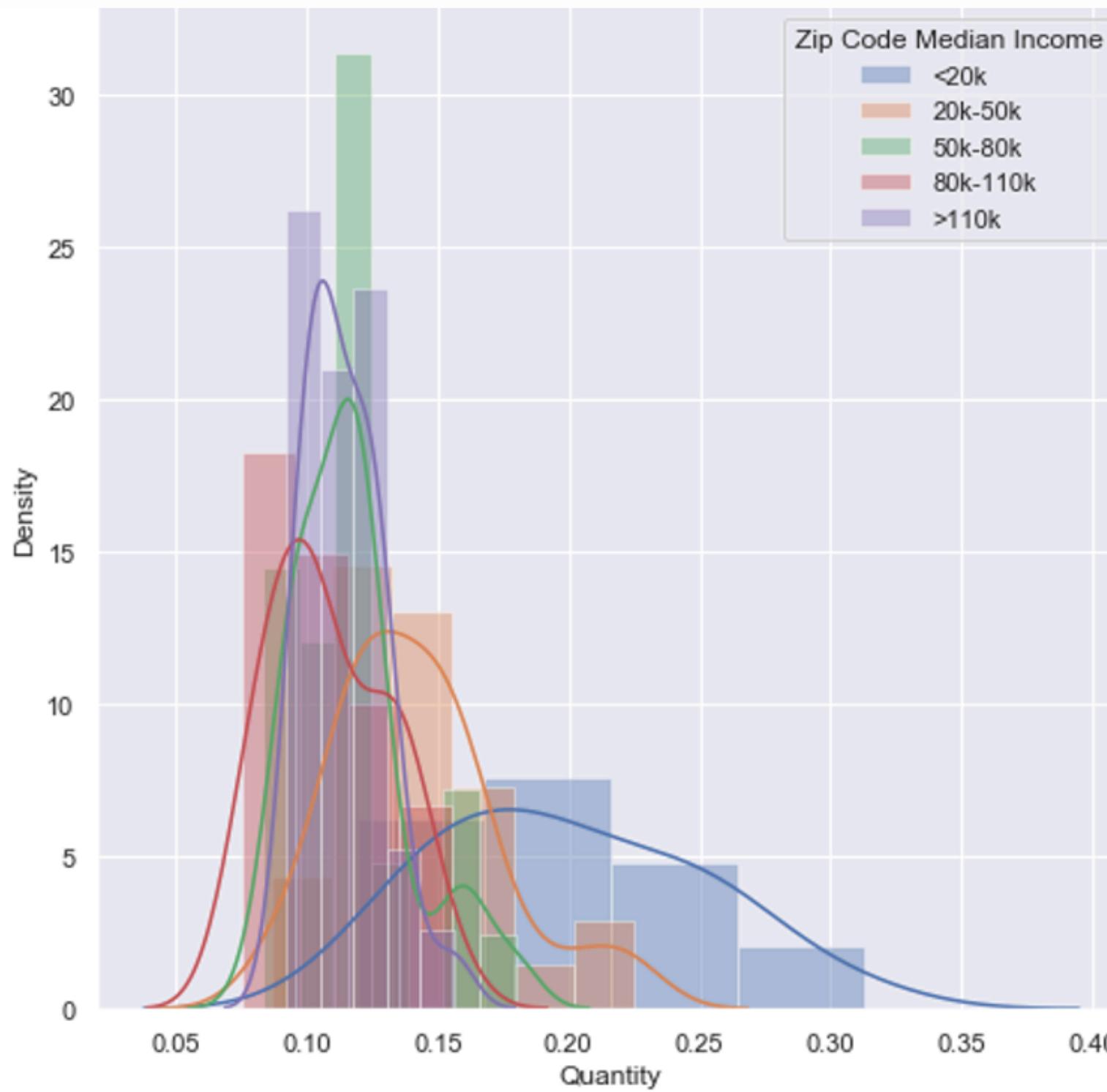
THE POSSIBILITIES DONT STOP THERE!

DBSCAN with demographic data



THE POSSIBILITIES DONT STOP THERE!

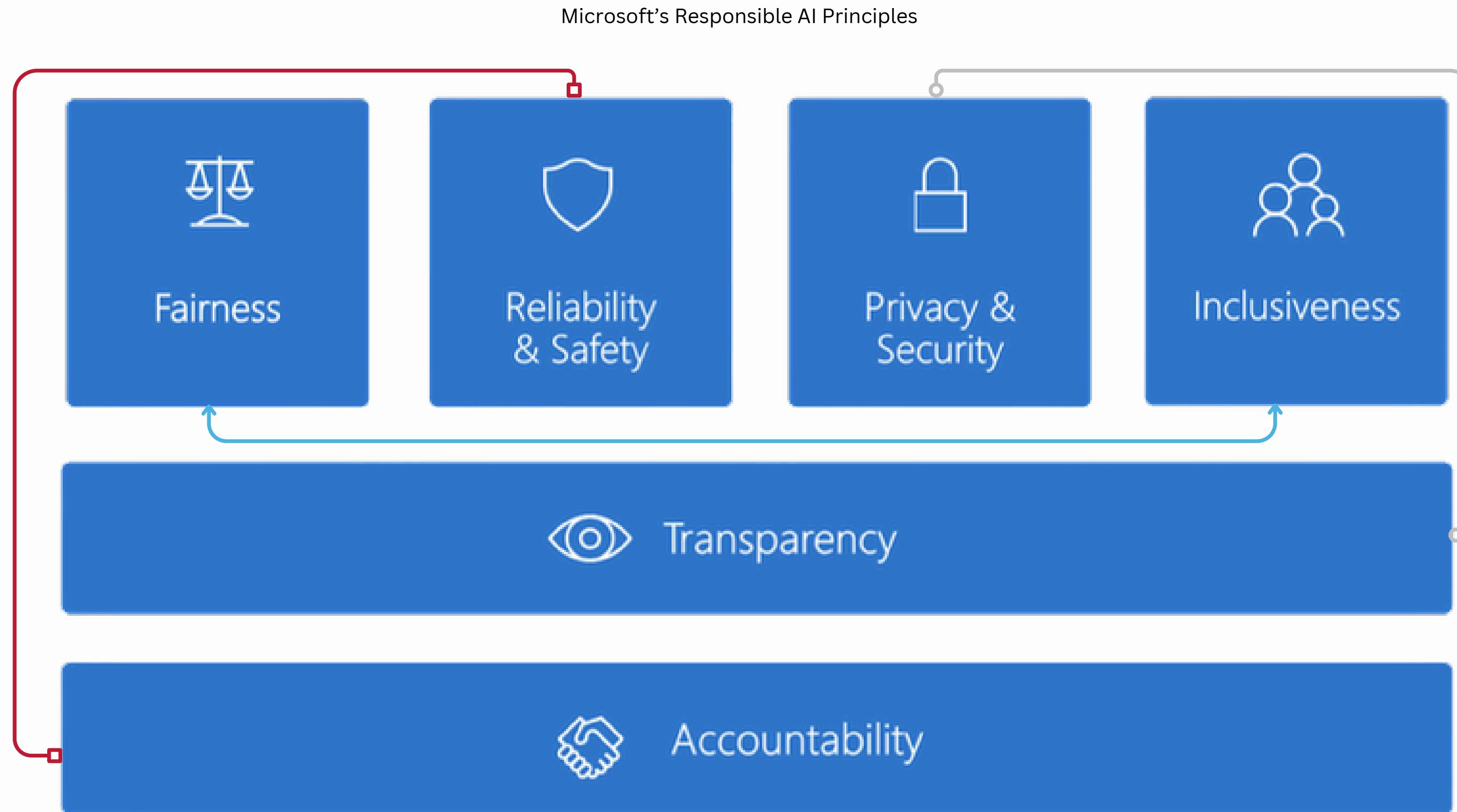
Sample Mean Response Times for Residential Noise Complaints by Income Range



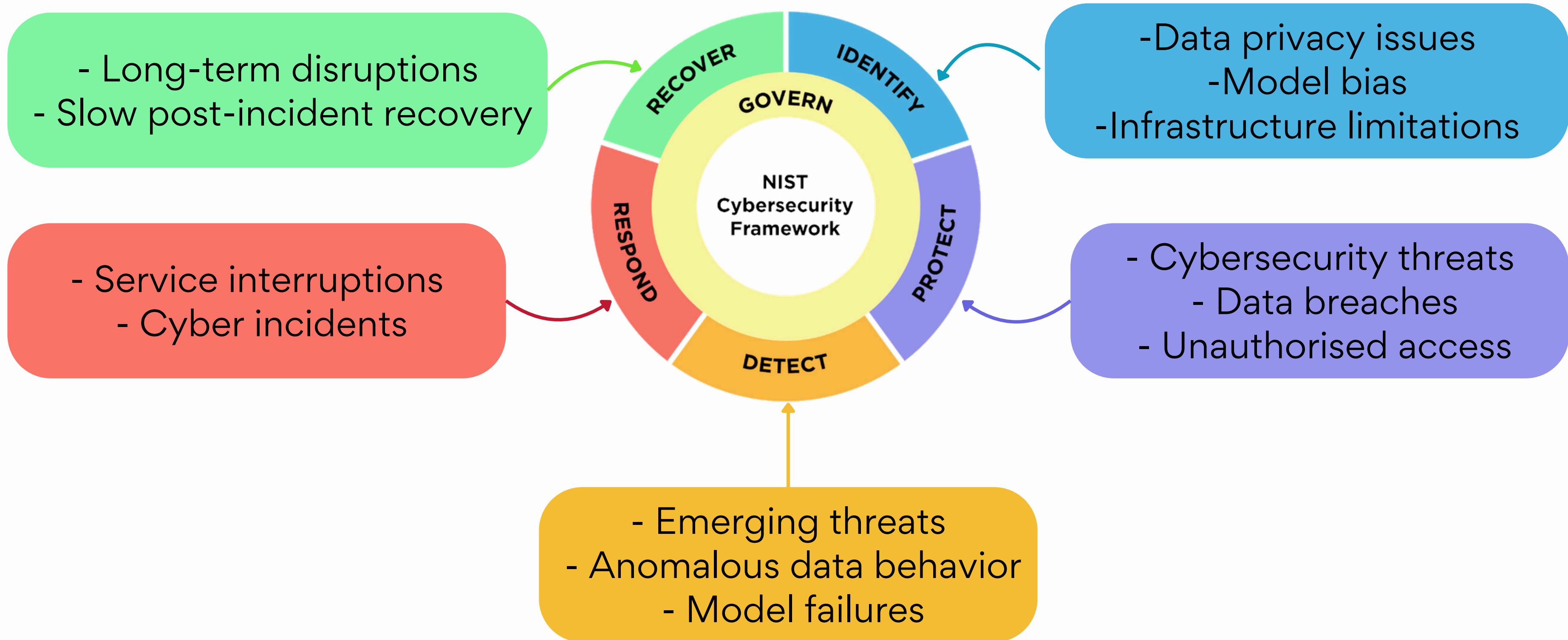
WHAT ABOUT ETHICAL CONSIDERATIONS?

Stakeholder	Responsible	Accountable	Consulted	Informed
Mayor's Office		X	X	X
City Council			X	X
DoITT NYC	X	X	X	X
Service Departments	X	X	X	X
Community Boards			X	X
Residents			X	X
UrbanTech Solutions	X		X	X
ChatGPT Solutions	X	X	X	X
External Partners	X		X	X

WHAT ABOUT ETHICAL CONSIDERATIONS?



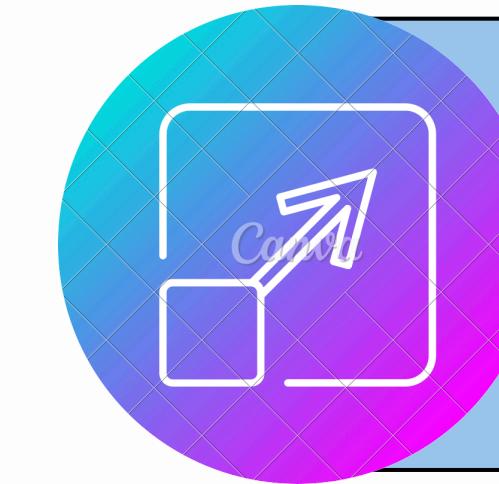
WHAT ABOUT ETHICAL CONSIDERATIONS?



DRIVING BUSINESS IMPACT



Enhanced Reputation and Brand Value



Scalability and Adaptability

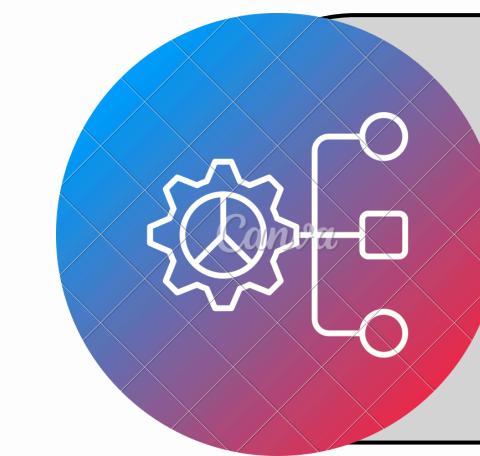


Increased Operational Efficiency

DRIVING BUSINESS IMPACT



Customer Satisfaction



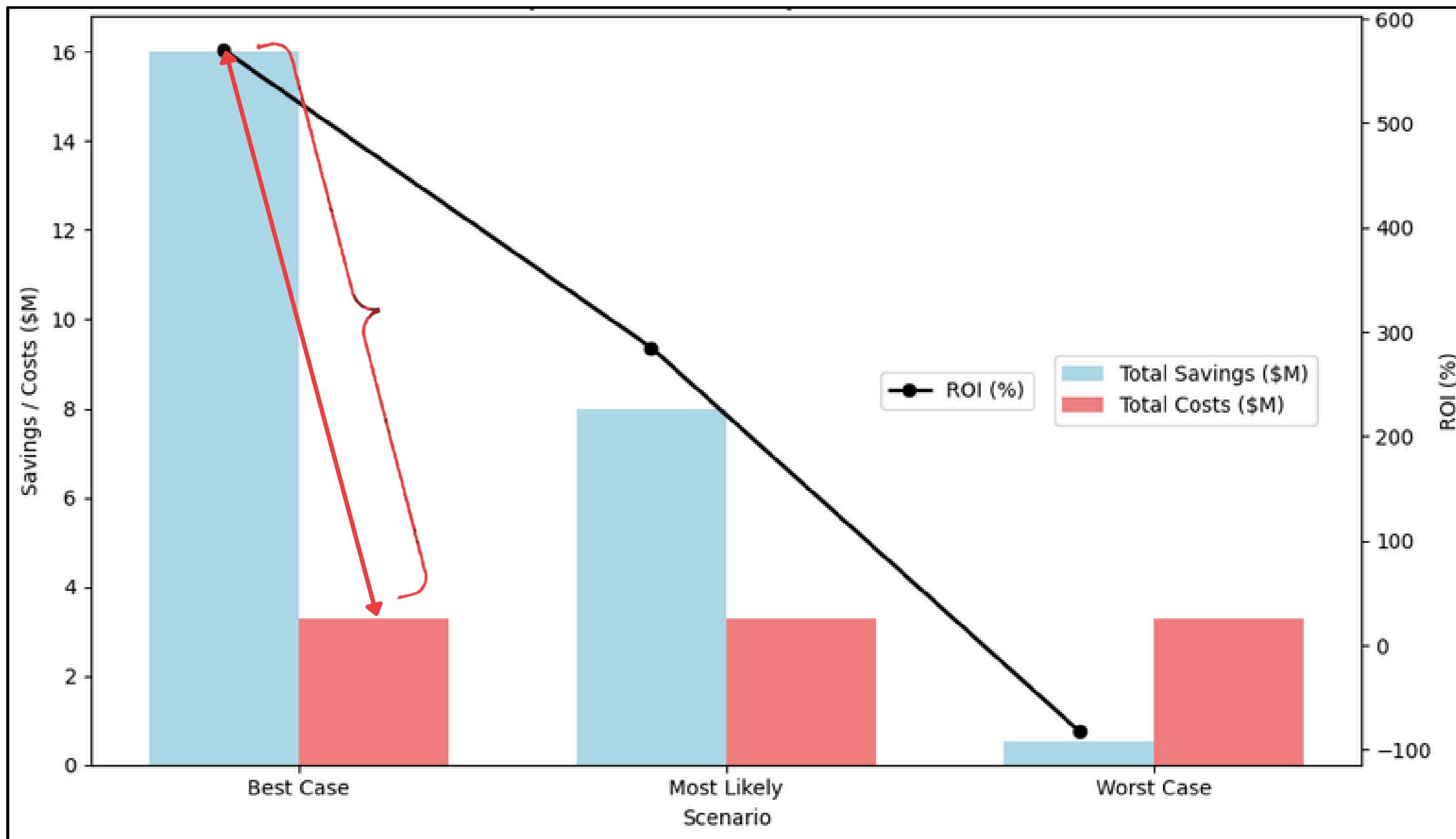
Optimised Resource Allocation



Sustainability profile

CBA OF ML IMPLEMENTATION

Case wise cost benefit analysis

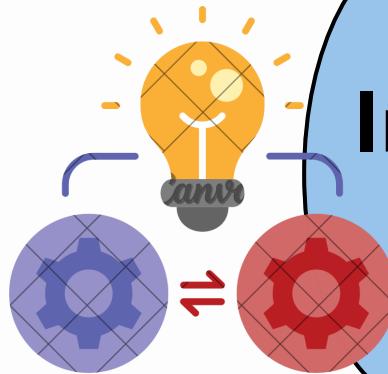


Best case gains is **USD 10 Million**

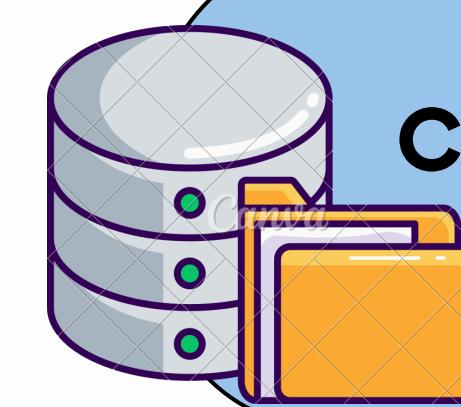
CBA OF ML IMPLEMENTATION

Category	Costs	Benefits
Direct Costs	\$1.2M: Machine learning model development	\$12M: 20% reduction in crime rates (Best Case)
	\$800K: System integration with city infrastructure	\$3M: 15% faster emergency response (Best Case)
	\$500K: Data acquisition/storage costs (annual)	\$1M: 30% reduction in operational costs (Best Case)
	\$300K : Staff training and onboarding	\$5M : Enhanced public safety and citizen satisfaction (long-term)
Indirect Costs	\$200K: Opportunity costs from delayed adoption	Improved public image and scalability across cities (non-monetary)

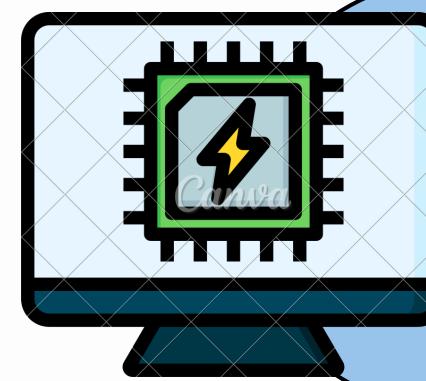
CHALLENGES OF IMPLEMENTATION



Integrating Spatial and Temporal Solutions



Complexities in Handling Large Datasets



Lack of Computational Power

REALISING BENEFITS: STEERING VALUE



John submits a complaint by calling 311

Complaint logged in NYC 311 database
ML model tags complaint

↓
Receives text with case number, repair timeframe, and priority

↓
Accesses web portal: real-time status, similar complaints, related projects

↓
Gets repair notification, provides feedback (trains LSTM model)

CONCLUSION: TRANSFORMING URBANTECH

