Urban Privacy and Surveillance:
Contextual Legitimacy in Smart City Camera Use

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Introduction

The problem: Smart cities increasingly rely on drone cameras and ALPR systems. These technologies promise efficiency and safety but raise privacy concerns.

The gap: Public debates frame surveillance as a privacy–security tradeoff. Yet little is known about how residents evaluate specific uses by specific city departments.

The theoretical lens: Using Nissenbaum's contextual integrity framework, we examine how acceptability depends on actors, purposes, and data practices.

Research Goal

How acceptable do Austin residents find the use of
- **drone cameras** by different city departments for different purposes? – RQ1
- **ALPRs** by different city departments for different purposes? – RQ2

Does acceptability **vary systematically**
- across institutional **actors** (e.g., police vs transportation vs schools)? – RQ3
- across **purposes** (e.g., emergency response vs routine monitoring vs crowd control)? – RQ4

Methods

Sample
Online panel (Centiment)
N = 1,060 Austin residents (ZIP-verified)
June–July 2025

Design
Actor × Purpose Scenarios
5-point ordinal acceptability scale

Analysis
Proportional-odds logistic regression
McFadden R^2 up to .056

Figures

Figure 1: Mean acceptability of drone use across departments and operational scenarios (N = 1,060).

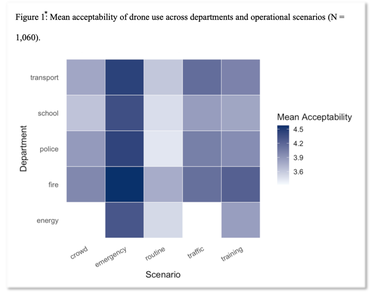
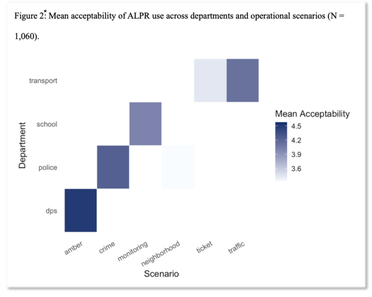
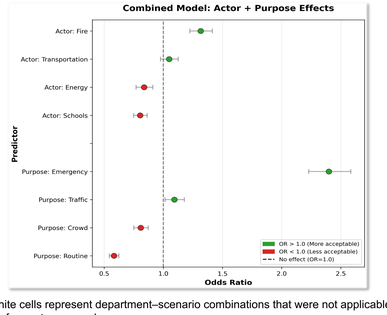


Figure 2: Mean acceptability of ALPR use across departments and operational scenarios (N = 1,060).





* White cells represent department–scenario combinations that were not applicable and therefore not measured.

Results

Context is Everything: Public acceptance is not about the technology itself, but how it is used.
Evidence (Drones):
- Highly acceptable: Fire Dept. for Emergency Response (Mean: 4.58)
- Less acceptable: Police for Routine Monitoring (Mean: 3.44)

A hierarchy of acceptance: Urgent, life-saving scenarios create strong legitimacy, while routine or punitive uses do not.
- Highest rated: DPS for Amber Alerts (Mean: 4.51)
- Lowest rated: Transportation Dept. for Issuing Tickets (Mean: 3.44)

The role of individual factors:
- **Familiarity**: Across all models, familiarity was one of the strongest positive predictors of acceptance. More knowledge correlates with less anxiety.
- **Political Ideology**: A complex curvilinear (U-shaped) relationship emerged: both liberals and conservatives were more accepting than moderates.
- **Data Practices**: The public is highly sensitive to who receives the data.

Conclusion

Austin residents apply nuanced, **context-dependent judgments** that integrate institutional trust, purpose legitimacy, and technology characteristics.

Purpose matters more than actor (larger effect sizes), suggesting that **why** surveillance is deployed drives legitimacy more than **who** deploys it.

Public concern about data governance may undermine otherwise acceptable surveillance uses

Policy Implications

- **Avoid one-size-fits-all surveillance policies:** Municipal agencies should recognize that surveillance acceptability is **context-dependent**, not uniform.
- **Emphasize Emergency Preparedness:** Agencies can increase acceptance by framing surveillance within disaster response, public safety, and life-saving missions. However, mission creep—expanding from emergency to routine use—may erode public trust.
- **Leverage Institutional Trust:** Agencies may increase acceptance through transparency, civilian oversight, and clear accountability structures.
- **Technology-Specific Messaging:**. Agencies should provide clear, compelling justifications (e.g., Amber Alerts, stolen vehicle recovery) rather than broad surveillance mandates. General "law enforcement" justifications may be insufficient for more invasive technologies.

Limitations

- Cross-sectional design
- Non-probability sampling
- Unexplained mechanisms (psychological pathways)