GOOD SYSTEMS
A UT Grand Challenge

Smart Cities and Ethical Policies
The Challenges of Public Cameras and AI

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Introduction

This research investigates the practical, theoretical and policy implications of city-deployed cameras in seven US cities. Social values associated with privacy, public goods, and open data drive the work. As more cities deploy monitoring and sensing technologies of all sorts, cameras are in the front lines of data-gathering. For example, traffic cameras are used by cities and institutions all over the world to monitor various activities in the name of safety or efficiency. However, there are no commonly accepted standards for the use of the data such cameras provide, leading to concerns about City/State monitoring, particularly as AI and analytics applied to camera outputs become more pervasive and capable.

As the phrase "smart city" has achieved currency, the specifics of what contributes to a city "being smart," who oversees the component systems that contribute the intelligence to city systems, and what they may mean for individual citizens' lives remain poorly understood and defined.

Research Question

1) What is the current status of municipal policies and experiences with public cameras?

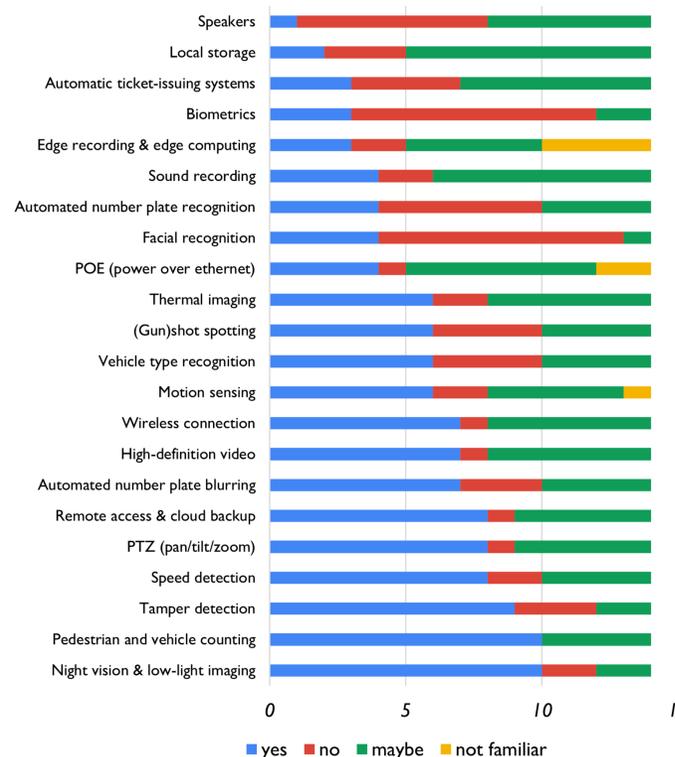2) How do cities grapple with ethical issues associated with the data their cameras capture?

Methods

1) Case Study: Austin, TX

2) Comparative Case Chicago, Detroit, Portland, San Diego, San Francisco, and Seattle

3) Delphi Survey: on risks and benefits, governance, technical capabilities, and public engagement

4) Focus Group: students, activists, tech workers, local government staff

Research Highlights

City	Governance		Technology		Data Policies	Community Response & Oversight
	Goal & Description	Supplier	Capabilities			
Austin	Municipality Departments: Police, Transportation, Fire, Parks	Private vendors	CCTV cameras, sensors, drones		No archived data are publicly available; shared with police on need-to-know basis; data for transportation in real-time only	None specified
Chicago	University and national labs: environment, transportation	U Chicago and Argonne Laboratory	Air quality sensors, cameras		Open, free public access to aggregate data	Partner with civic groups, invite community feedback, engagement report, education outreach; internal working group & independent reviewing committee
Detroit	Policing: voluntary businesses "opt-in"	Private vendors (specifics mandated by the local PD)	Real-time monitoring with FRT, indoor cameras, paid "priority" response system		None specified; police access to all data	Pilot programs for awareness building; public safety meetings by DPD
Portland	Environment, transportation	Private vendors	Cameras, microphones (not turned on), environmental sensors; bans public and private use of FRT		Only saves aggregated data	Consultations with targeted communities, early-stage public comments; MOU to be renewed in annual meetings; City Council proposed ordinance in April 2021
San Diego	Initially energy-saving, environment, and transportation, later policing	Private vendors	Cameras, environmental sensors, no FRT		Raw footage stored for five days; free public access to aggregate data	Community forums and tours; community advocacy coalition as engagement broker; ordinances and privacy work group established after public backlash
San Francisco	Neighborhood-based community surveillance	One private donor ($4 million in cameras)	Higher image quality, large field of vision, close-up monitoring, no FRT		Footage monitored by neighborhood coalitions, which individually determine data availability; systems may include video analytics	Neighborhood coalition leads decision making
Seattle	Policing, utility, fire, transportation	Private vendors	CCTV cameras, automated license plate recognition, Booking Photo Comparison		Comprehensive data policies in Surveillance Impact Report	Surveillance Ordinance; Public presentations, structured discussions, public comment period

☐ What are the two most important **issues** local government should consider when passing an ordinance that regulates public camera systems?
 ○ data (access, use, retention)
 ○ transparency
 ○ privacy

☐ What are the primary **risks** of public camera systems?
 ○ abuse/misuse
 ○ privacy
 ○ police access

☐ What are the primary **benefits** of public camera systems?
 ○ safety
 ○ situational awareness
 ○ response improvement

☐ What capabilities should **staff** working with public camera systems have?
 ○ training (privacy, appropriate use, security)
 ○ accountability
 ○ activity log

Should public camera systems include the following capabilities?

Speakers, Local storage, Automatic ticket-issuing systems, Biometrics, Edge recording & edge computing, Sound recording, Automated number plate recognition, Facial recognition, POE (power over ethernet), Thermal imaging, (Gun)shot spotting, Vehicle type recognition, Motion sensing, Wireless connection, High-definition video, Automated number plate blurring, Remote access & cloud backup, PTZ (pan/tilt/zoom), Speed detection, Tamper detection, Pedestrian and vehicle counting, Night vision & low-light imaging

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■ yes ■ no ■ maybe ■ not familiar

Expected Output

1) Conference Paper: **Smart cities and ethical policies: The challenges of public cameras and AI** @ The 49th Annual Research Conference on Communications, Information, and Internet Policy

2) Conference Paper: **Public policy meets public surveillance** @ The 22nd annual conference of the Association of Internet Researchers

3) Conference Panel: **Data transparency, civic participation, and global data** @ The 72nd Annual International Communication Association Conference

4) Journal Article: Journal of Information Policy (submitted)

HOW A SMART STREETLIGHT WORKS

ARRAY THINGS

STARTING WITH
CityIQ: Universal Intelligent Node for All Street Lights

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