

Ethics and Smart Cities

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Smart city systems and key questions

Domain	Example technologies
Government	E-government systems; online transactions; city operating systems; performance management systems; urban dashboards
Security and emergency services	Centralised control rooms; digital surveillance; predictive policing; coordinated emergency response
Transport	Intelligent transport systems; integrated ticketing; smart travel cards; bikeshare; real-time passenger information; smart parking; logistics management; transport apps
Energy	Smart grids; smart meters; energy usage apps; smart lighting
Waste	Compactor bins and dynamic routing/collection
Environment	Sensor networks (e.g., pollution, noise, weather; land movement; flood management)
Buildings	Building management systems; sensor networks
Homes	Smart meters; app controlled smart appliances
Civic	Various apps; open data; volunteered data/hacks
Ditto smart programmes / smart districts	

What are these systems being used to do? For what purpose are they being deployed? What and whose principles, values, ethos underpin them?

What are their effects? Not just primary, but secondary?

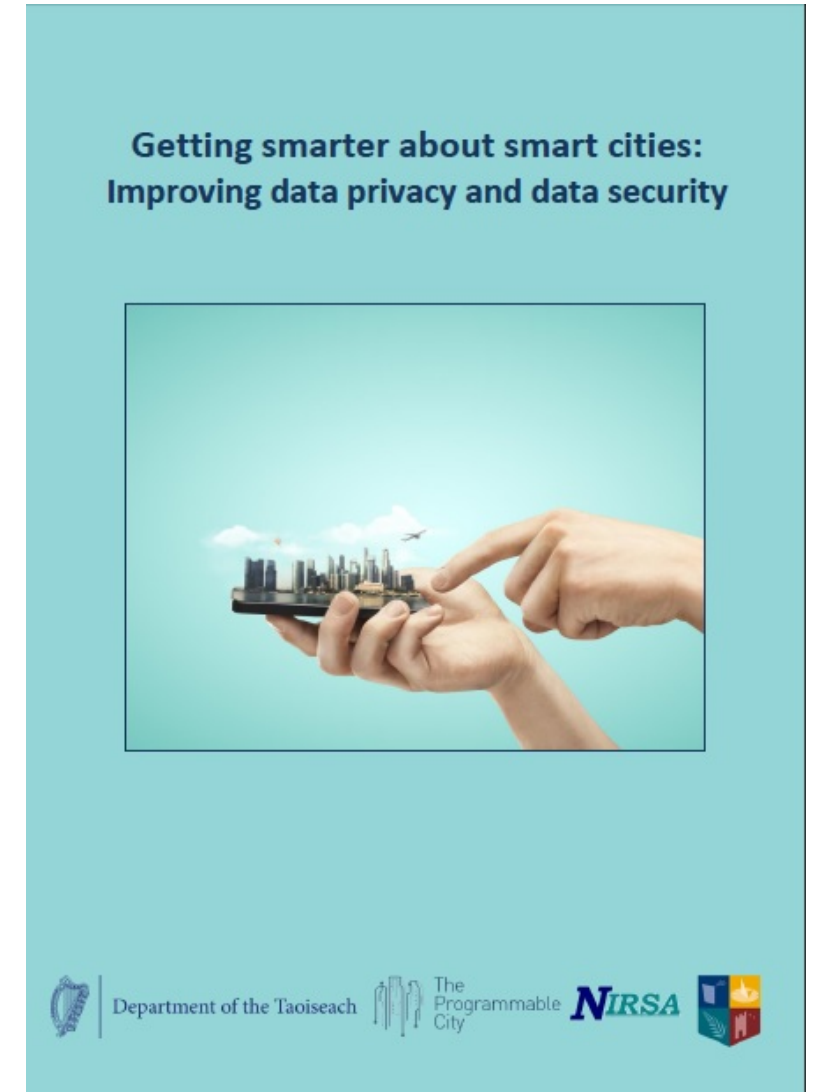
For whose benefit are they being run? Do they serve everyone equally? Do they create winners/losers?

Who gets to decide what systems are implemented and how?

What data are these systems generating? Where is this data being stored, who is it being shared with, what is it being used for?

Ethics and security concerns

- Urban big data and smart city systems create a number of other ethical concerns:
 - Ownership, control, data markets
 - Privacy harms
 - Social sorting / redlining
 - Predictive profiling / anticipatory governance
 - Nudge / behavioural change
 - Dynamic pricing
 - Data security
 - Control creep
 - Buggy, brittle, hackable urban systems



Ethics and smart cities

- Moral philosophy
 - Ethics of care
 - Citizenship
 - Social Justice
- Legal/regulatory issues
 - Privacy/data protection, data markets/usage
 - Data security
- Normative – what *should be* vs what *has to be*
- Principles, values, ethos (*vision*) vs meeting obligations (*compliance*)
- Really seeking to address or reputation management & ethics washing?
- Makes a difference to approach adopted
- What kind of smart city do we want to create?

Procedural vs Normative

Locate source of the problem in individuals and technical systems	Acknowledges structural power and works towards redistribution and reconfiguration
Ethics	Justice
Bias	Oppression
Consumer rights	Citizenship
Fairness	Equity
Regulation infrastructure/spaces	Commons/public good
Accountability	Co-liberation
Transparency	Reflexivity
Understanding algorithms	Understanding history, culture, and context

Modified from 'Data Feminism' by Catherine D'Ignazio and Lauren Klein (MIT Press, 2019)

Citizenship

- Citizenship defines an individual's membership in a polity and their rights, entitlements, duties and responsibilities
- How are citizens framed within and treated by smart urbanism?
- How is citizenship expressed through smart city systems?
- Initial critique of smart cities was that:
 - their framing and operation is top-down, technocratic, instrumental
 - they serve the interests of states and corporations more than they do citizens
- The response was to reframe smart cities as 'citizen-centric' or 'citizen-focused'
- But this has little happened in practice beyond window-dressing

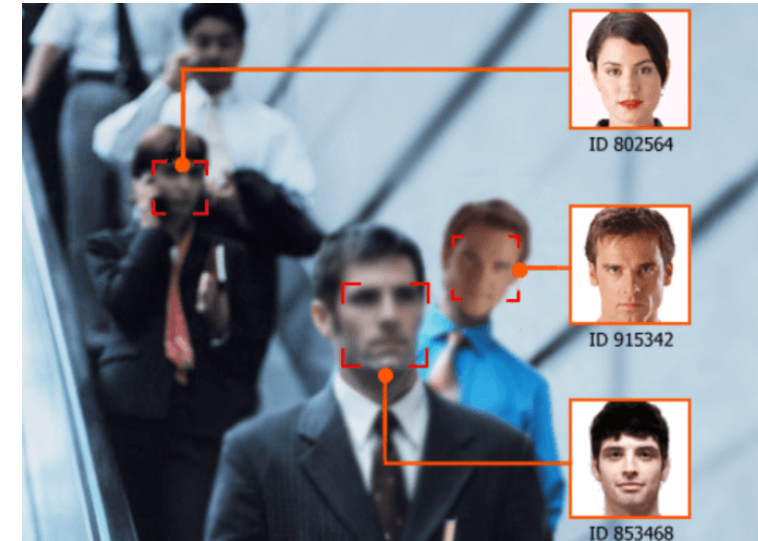
Form and Level of Participation		Role	Citizen Involvement	Political discourse/ framing	Modality	Dublin Examples
Citizen Power	Citizen Control	Leader/ Member	Ideas, Vision, Leadership, Ownership, Create	Rights, Social/Political Citizenship, Deliberative Democracy, Commons	Inclusive, Bottom- up, Collective, Autonomy, Experimental	Code for Ireland, Tog
	Delegated Power	Decision-maker, Maker				Civic Hacking, Hackathons, Living Labs, Dublin Beta
	Partnership	Co-creator	Negotiate, Produce			
Tokenism	Placation	Proposer	Suggest	Participation, Co- creation	Top-down, Civic Paternalism, Stewardship, Bound-to-succeed	Fix-Your-Street, Smart Dublin Advisory Network
	Consultation	Participant, Tester	Feedback			CIVIQ, Smart Stadium
	Information	Recipient	Browse, Consume, Act	Civic Engagement		Dublinked, Dublin Dashboard, RTPI
Consumerism	Choice	Resident		Capitalism, Market, Neoliberalism		Smart building/ Smart district
		Consumer				Smart meters
		Product				Personal data generated by tech
Non-Participation	Therapy	Patient, Learner, User, Data-point	Steered, Nudged, Controlled	Stewardship, Technocracy, Paternalism		Smart Dublin, Dublin Bikes
	Manipulation					Traffic control

Social Justice

- Social justice concerns the expected and acceptable ways in which people are treated and the conditions in which they live
- Theories of social justice fall into four broad types:
 - distributional (fair share);
 - procedural (fair treatment);
 - retributive (fair punishment for wrongs);
 - restorative (righting of wrongs)
- Which version, within each type, is adopted makes a fundamental difference to the principles and ethos underpinning smart urbanism
- What forms of social justice do and should operate in the smart city?
- What would a just smart city look like and operate in practice?

Privacy

- Privacy concerns acceptable practices with regards to accessing and disclosing personal and sensitive information about a person
 - **identity privacy** (to protect personal and confidential data)
 - **bodily privacy** (to protect the integrity of the physical person);
 - **territorial privacy** (to protect personal space, objects and property);
 - **locational and movement privacy** (to protect against the tracking of spatial behaviour)
 - **communications privacy** (to protect against the surveillance of conversations and correspondence);
 - **transactions privacy** (to protect against monitoring of queries/searches, purchases, and other exchanges)
- Smart city technologies infringe on privacy



Fair Information Practice Principles

Principle	Description
Notice	Individuals are informed that data are being generated and the purpose to which the data will be put
Choice	Individuals have the choice to opt-in or opt-out as to whether and how their data will be used or disclosed
Consent	Data are only generated and disclosed with the consent of individuals
Security	Data are protected from loss, misuse, unauthorized access, disclosure, alteration and destruction
Integrity	Data are reliable, accurate, complete and current
Access	Individuals can access, check and verify data about themselves
Use	Data are only used for the purpose for which they are generated and individuals are informed of each change of purpose
Accountability	The data holder is accountable for ensuring the above principles and has mechanisms in place to assure compliance

Approach 1: Practical tactics

- Market:
 - Industry standards and self-regulation
 - Ethics as competitive advantage
- Technological
 - End-to-end strong encryption, access controls, security controls, audit trails, backups, up-to-date patching, etc.
 - Privacy enhancement tools, etc.
- Policy and regulation
 - FIPPs
 - Privacy by design; security by design
 - Education and training
- Governance
 - *Vision and strategy*: (1) smart city advisory board and smart city strategy;
 - *Oversight of delivery and compliance*: (2) smart city governance, risk and compliance board;
 - *Day-to-day delivery*: (3) core privacy/security team, smart city privacy/security assessments, and (4) computer emergency response team, etc.

Approach 2: Holistic strategy

- Practical solutions guided by, and embedded in, a holistic approach underpinned by a moral philosophy:
 - Ethics of care
 - Citizenship
 - Social justice
 - Principles, values, ethos ...
- Not just actions of Liverpool LAs, but every service procuring, plus pressure on the entire ecosystem (LAs hold everyone to account)
- Barcelona ... technological sovereignty
- Medellín ... social urbanism
- Liverpool ... (vision?) ... or purely procedural

Some readings

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