The ethics of smart cities

Rob Kitchin

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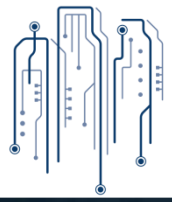


The Programmable City

progcity.maynoothuniversity.ie

Maynooth University
National University of Ireland Maynooth

Social Sciences Institute

European Research Council

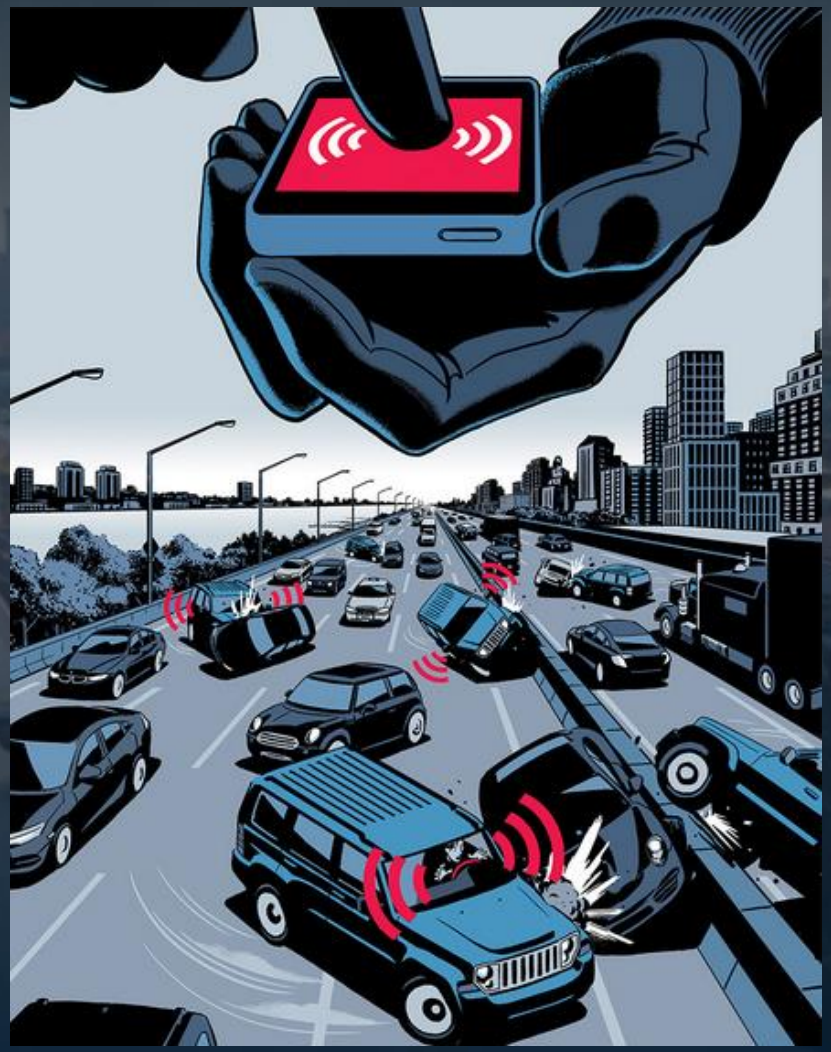
Established by the European Commission

Summary of research/findings

- Task was to investigate the data privacy and security issues of urban big data and smart cities
- A number of concerns were identified:
  - Surveillance and privacy harms
  - Ownership, control, data markets
  - Social sorting / redlining
  - Predictive profiling / anticipatory governance
  - Nudge / behavioural change
  - Dynamic pricing
  - Data security
  - Control creep
  - Buggy, brittle, hackable urban systems

Hacking the city

- Weak security and encryption
- Insecure legacy systems and poor maintenance
- Large and complex attack surfaces and interdependencies
- Cascade effects
- Human error and disgruntled (ex)employees



Key lessons

- Market:
  - Industry standards and self-regulation
  - Privacy/security as competitive advantage
- Technological
  - End-to-end strong encryption, access controls, security controls, audit trails, backups, up-to-date patching, etc.
  - Privacy enhancement tools
- Policy and regulation
  - Education and training
  - FIPPs
  - Privacy by design;
  - security by design
- 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

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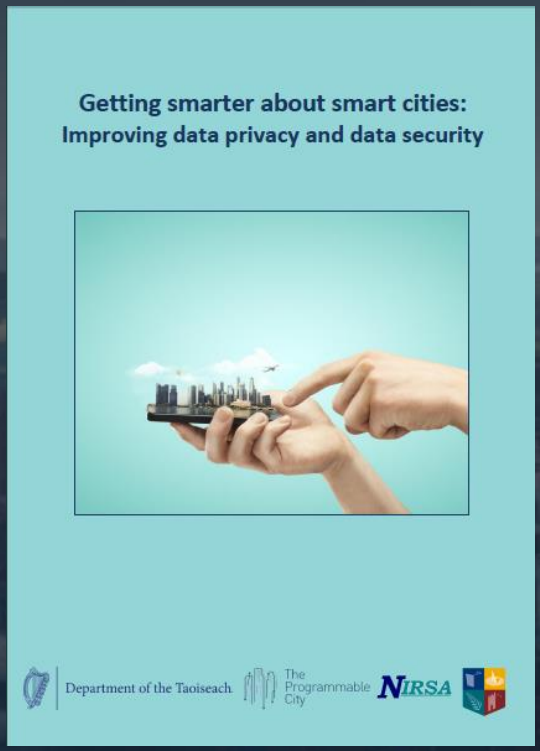
- Kitchin, R. (2016) The ethics of smart cities and urban science. *Philosophical Transactions A* 374(2083): 1-15.
- Kitchin, R. and Dodge, M. (2017, online first) The (in)security of smart cities: vulnerabilities, risks, mitigation and prevention. *Journal of Urban Technology*