# Smart city systems

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

Smart economy
- entrepreneurship,
- innovation, productivity,
- competitiveness

Smart environment
- green energy,
- sustainability, resilience

Smart mobility
- intelligent transport systems,
- multi-modal inter-op, efficiency

Smart people
- more informed, creativity, inclusivity,
- empowerment, participation

Smart living
- quality of life, safety,
- security, manage risk

Smart government
- e-gov, open data, transparency,
- accountability, evidence-informed decision making,
- better service delivery

Smart Cities
Perils of smart cities

• Frames city as systems; knowable, rational, steerable machine
• Claims objective, neutral, non-ideological approach
• Neoliberal political economy & corporatisation of governance
• City as an accumulation strategy: tech-led entrepreneurial urbanism
• Technocratic governance and solutionism
• (Re)produces neoliberal citizenship & shifts governmentality from discipline to control
• Ahistorical, aspatial, homogenizing and bounded
• Buggy, brittle, hackable
• Reinforce power relations & inequalities
• Profound social, political, ethical effects
Key questions

• What are the ethical implications of smart city approaches and systems?
• How are citizens expected to act and participate in the smart city?
• How is public space and the urban commons framed and regulated in the smart city?
• What sort of publics can be formed and what actions can they take?
• To what extent are injustices embedded in city systems, infrastructures and services and in their calculative practices?
• What systems and structures of inequality are (re)produced within smart urbanism?
• What models of citizenship are enacted within the smart city?
• What forms of social justice operate in the smart city and what are their effects?
• What kind of smart city do we want to create and live in?
Recasting the smart city

• Main approaches to recasting the smart city:
  • procedural/regulatory interventions (ethics, law, technical solutions)
    • privacy/data protection, data governance, data security
    • re-envisioning and orientating the smart city so fair and proportionate
    • reifies existing structural relations, rather than challenging and transforming them
  • inverting the ethos and use of smart city technologies (citizen-centric, justice)
    • moral philosophy – citizenship, social justice, ethics of care, right to the city
    • Seeks genuinely humanizing smart urbanism
  • discontinuing and blocking their deployment
• decentring: smart city → city

• Normative – what *should be* vs what *has to be*
• Principles, values, ethos (*vision*) vs meeting obligations (*compliance*)
## Technical/procedural vs normative/ideological

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

Modified from ‘Data Feminism’ by Catherine D'Ignazio and Lauren Klein (MIT Press, 2020)
Technical/procedural concerns

- Smart city systems create a number of ethical concerns relating to:
  - Surveillance and privacy
  - Ownership, control, data markets
  - Social sorting / redlining
  - Predictive profiling / anticipatory governance
  - Nudge / behavioural change
  - Dynamic pricing
  - Data security
  - Control creep
### Technical/procedural solutions/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**
- Fair Information Practice Principles
- Privacy by design; security by design
- Education and training

**Governance**
- Vision and strategy
- Oversight of delivery and compliance
- Day-to-day delivery
Normative/ideological framing/strategy

• Practical solutions guided by, and embedded in, a holistic approach underpinned by a moral philosophy:
  • The Right to the Smart City
  • Citizenship
  • Social justice
  • Principles, values, ethos ...
The Right to the Smart City

- Need to take seriously technical/procedural issues but framed within a normative/ideological approach
- ‘The Right to the Smart City’, following Lefebvre (1967/1996)
- Space should be shaped according to its inhabitants’ needs and not determined predominately by a political and economic elite:
  - Right of habitation (all citizens receive the material (e.g., a living wage, shelter) and non-material (e.g., recognition, respect, dignity) necessities of life)
  - Right to participation and self-determination (citizens taking a direct part in the management of cities)
  - Includes a suite of related rights, such as the right to: information, free expression, culture, difference and equality, self-management, public and non-public services, free movement, occupy public spaces, protect the commons from private ownership, meetings and gathering, political representation and to vote
Citizenship

- Citizenship defines an individual’s membership in a polity and their rights, entitlements, duties and responsibilities.
- Initial critique: smart cities 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’.
- However, citizens were an empty signifier.
- Citizens mere recipients of stewardship (for citizens) and civic paternalism (deciding what is best for citizens) enacted by city administrations and the market.
- Smart cities are rarely ‘citizen-centric’ beyond tokenism or by narrowly framing citizenship in neoliberal terms rooted in individual autonomy and freedom of ‘choice’ within constraints.
<table>
<thead>
<tr>
<th>Form and Level of Participation</th>
<th>Role</th>
<th>Citizen Involvement</th>
<th>Political discourse/ framing</th>
<th>Modality</th>
<th>Dublin Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizen Power</td>
<td>Citizen Control</td>
<td>Leader/Member</td>
<td>Rights, Social/Political Citizenship, Deliberative Democracy, Commons</td>
<td>Inclusive, Bottom-up, Collective, Autonomy, Experimental</td>
<td>Code for Ireland, Tog</td>
</tr>
<tr>
<td></td>
<td>Delegated Power</td>
<td>Decision-maker, Maker</td>
<td>Ideas, Vision, Leadership, Ownership, Create</td>
<td></td>
<td>Civic Hacking, Hackathons, Living Labs, Dublin Beta</td>
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<tr>
<td></td>
<td>Partnership</td>
<td>Co-creator</td>
<td>Negotiate, Produce</td>
<td></td>
<td></td>
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<tr>
<td>Tokenism</td>
<td>Placation</td>
<td>Proposer</td>
<td>Suggest</td>
<td>Participation, Co-creation</td>
<td>Fix-Your-Street, Smart Dublin Advisory Network</td>
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<td></td>
<td>Consultation</td>
<td>Participant, Tester</td>
<td>Feedback</td>
<td>Civic Engagement</td>
<td>CIVIQ, Smart Stadium</td>
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<td></td>
<td>Information</td>
<td>Recipient</td>
<td></td>
<td></td>
<td>Dublinked, Dublin Dashboard, RTPI</td>
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<tr>
<td>Consumerism</td>
<td>Choice</td>
<td>Resident</td>
<td>Browse, Consume, Act</td>
<td>Capitalism, Market, Neoliberalism</td>
<td>Smart building/Smart district</td>
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<td></td>
<td></td>
<td>Consumer</td>
<td></td>
<td></td>
<td>Smart meters</td>
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<td></td>
<td></td>
<td>Product</td>
<td></td>
<td></td>
<td>Personal data generated by tech</td>
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<tr>
<td>Non-Participation</td>
<td>Therapy</td>
<td>Patient, Learner, User, Data-point</td>
<td>Steered, Nudged, Controlled</td>
<td>Stewardship, Technocracy, Paternalism</td>
<td>Smart Dublin, Dublin Bikes</td>
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<tr>
<td></td>
<td>Manipulation</td>
<td></td>
<td></td>
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<td>Traffic control</td>
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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.
<table>
<thead>
<tr>
<th>Theory of Social Justice</th>
<th>Application to data-driven harms</th>
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</thead>
<tbody>
<tr>
<td><strong>Egalitarianism</strong> argues for equality in terms of distribution of wealth and power across all members of a society regardless of ability and inheritance</td>
<td><strong>Egalitarians</strong> would see data-driven harms and differential treatment as an affront to their principles of equality and demand that it be removed or made equal in effects across all citizens</td>
</tr>
<tr>
<td><strong>Utilitarianism</strong> seeks the greater good for the greatest number</td>
<td><strong>Utilitarians</strong> would treat the problem as a social nuisance that ought to be addressed for the greater good as it reproduces and deepens inequalities and their long term effects; or that it should be tolerated for greater good if benefits outweigh harms</td>
</tr>
<tr>
<td><strong>Libertarianism</strong> prioritises individual autonomy over the state and society and suggests that the free-market is inherently just</td>
<td><strong>Libertarians</strong> would put the rights of data extractors and profilers at a premium and what happens between the parties involved is a private matter, with citizens receiving the treatment they deserve or can afford</td>
</tr>
<tr>
<td><strong>Contractarianism</strong> seeks to find a distributional arrangement of resources that all involved considers just (not equal)</td>
<td><strong>Contractarians</strong> would look at the problem from all sides, arguing that if one group is unwilling to tolerate such data-driven harms then nobody should and the systems should be dismantled</td>
</tr>
<tr>
<td><strong>Marxism</strong> argues that society has to be restructured away from its current capitalist base into a society where the full value of an individual’s contribution is rewarded</td>
<td><strong>Marxists</strong> would argue that system that led to surveillance capitalism needs to be changed to a social democracy where people are not discriminated, exploited and alienated.</td>
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</table>

What forms of social justice do and should operate in the smart city?
Towards a genuinely humanizing smart urbanism

• Need to move beyond commonsensical, taken-for-granted, pragmatic, practical, technical, post-political notions of the smart city

• Need to avoid ‘citizenship-washing’ and ‘ethics-washing’

• Instead, need to reframe, reimagine and remake the smart city within an emancipatory and empowering framework

• Need to produce a genuinely humanizing smart urbanism underpinned by the notion of the ‘right to the city’

• Requires drawing on normative thinking related to citizenship, social justice, equity, and democracy

• This is no easy task given the interests of states and corporations, and embedded trajectory of capitalism and neoliberalism

• A further step is to decentre the smart city
Decentering smart cities

• Decentering ‘is to ‘see through’ technology and position it in relation to systems of oppression’ (Gangadharan and Niklas 2019: 895).

• Move away from the reification of technologies and recognize them as the agents of wider structural forces

• Focus on future city in a more holistic sense: how smartness might or might not be a means of realising a fairer, more open and tolerant city

• Not inserting equality/justice into smartness, but how smartness might create equality/justice in conjunction with other kinds of interventions (e.g., policy, collaborative planning, community development, investment packages, multi-stakeholder engagement, etc.)

• Not starting with tech (looking for problem), or turning first to tech for solution ...
Decentring smart cities

• The issues facing cities are not going to be fixed through technological solutionism, but a multifaceted approach:
  • Homelessness is not going to be fixed with an app
  • Congestion is not going to be fixed with intelligent transport systems
  • Institutionalized racism in predictive policing will not be fixed by tinkering with data and algorithms

• Platform and surveillance capitalism are not separate and distinct forms of capitalism; racism expressed through smart urbanism is not cut adrift from the structural logics and operations of institutionalized racism

• Instead, frame smart city technologies and their operations with respect to capitalism and racism per se; the solutions are anti-capitalist alternatives and anti-racism in which smart city technologies might or might not play some part

• Smart urbanism → urbanism