Cambridge Centre for Housing & Planning Research

Towards a co-creative Stakeholder engagement framework for Smart City projects

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Outline of presentation

- Background to the study
- Clarifying Smart Cities
- The research problem
- Research design and the building blocks of the proposed co-creative framework
- Elaboration on the framework
- Next steps for the research

Background

- **4.4 billion** people live in urban areas worldwide (Satterthwaite, 2020). This is projected to increase to **6.5 billion** by 2050 (UN DESA, 2019)
- Cities occupy **2% of the earth surface** yet produce **80% of GHG** and consume **80% of world resources** (Yigitcanler et al., 2019)
- Growing urban population would compel cities around the world to invest **$41 trillion** to upgrade citywide infrastructure and system connectivity by **2037** (Galati, 2018)
- Air pollution, traffic congestion, inadequate affordable housing, strain on urban infrastructure and services are just some of the challenges that cities face following rapid urbanisation (UNESCO, 2019)
- Fiscal constraints have forced city governments to look for **alternative sources** of funding city infrastructure projects and delivering **cost-effective solutions** to city problems (Cardullo & Kitchin, 2019)

Smart Cities: solutions to city problems

- Smart Cities are touted as solutions to city problems (Townsend, 2013)
- Over **47 definitions** have appeared in **43 publications** (Mosheni, 2020)

- Scholars emphasise the **use of sensors and actuators** to collect **big data**, and to leverage the power of **machine learning**, **artificial intelligence** and **algorithmic processing** to better understand how cities work and to find solutions to city problems (Batty, 2012)
- Smart Cities are usually described in terms of their:
  - **Verticals:**
    City services - Smart health - Smart mobility - CAVs - 5G and Next Generation connectivity - Last Mile Fleet & Logistics
    (Future City Catapult, 2018)
  - **Characteristics:**
    Smart economy - Smart people - Smart governance - Smart mobility - Smart environment - Smart living
    (Giffinger et al., 2007)

Criticisms against citizen engagement in Smart City development and calls for co-creation

- **How Smart Cities are funded** (Supranational bodies e.g. EU, 'Big Tech' firms e.g. IBM and national governments, e.g. UAE)

- **How (urban) citizenship is framed** (Users of specific technologies or platforms, people captured by sensors etc Joss et al., 2020, Cowley et al., 2019).

- **What (urban) citizens are expected to do in (Smart) Cities** (Provide feedback to tinker tech designs without avenues to question or change the instrumental rationality and bias inherent in Smart City technology development.

- **Who is involved in designing Smart City visions and strategies?** (local authorities, universities, technology companies – **the triple helix model -** Leyesdorf et al. 2014).

Co-creating Smart Cities with different city stakeholders

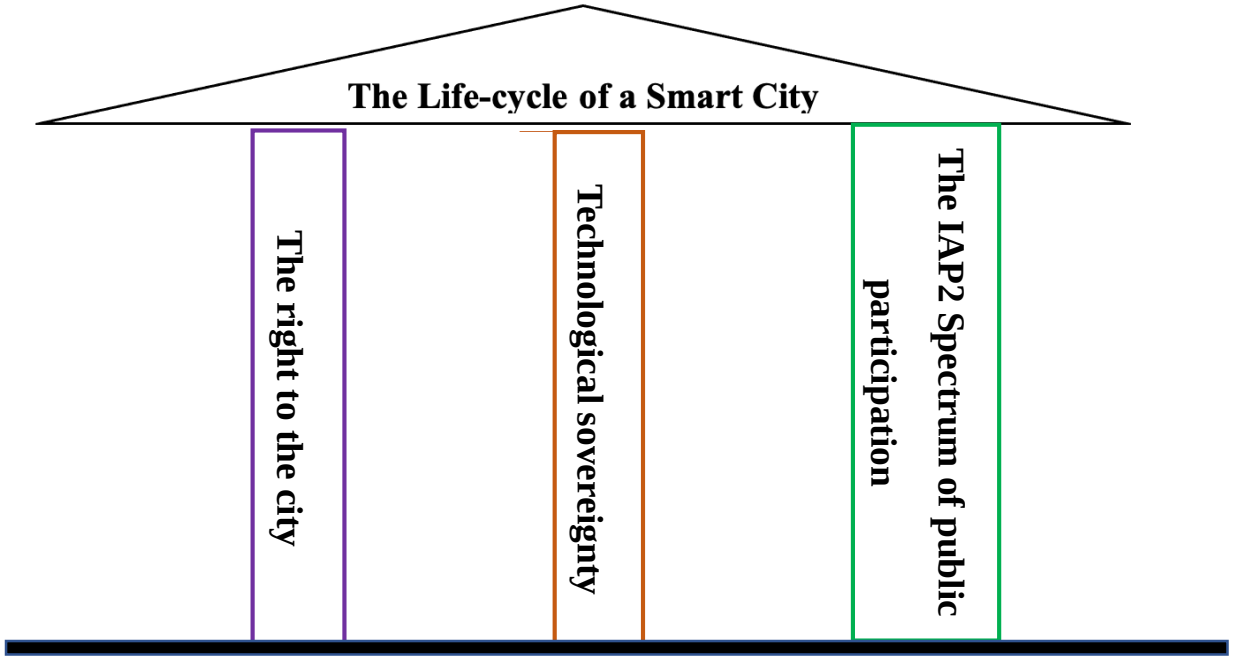
- Allowing **informed, networked, empowered** and **active city users** to help **define the meaning of value** and **contribute to** the **process of value creation** such that it reflect their **personalized experiences** (Adapted from Prahalad and Ramaswamy, 2004, p. 5).

- **Examples include**: Hackathons, Living Labs, Urban Data Schools, online participatory designs, E-government portals, using wearables to support planning interventions (Lodato & DiSilvio, 2015, Wilson et al., 2019, Wolff et al., 2020).

Why is a new co-creative stakeholder engagement framework needed?

- **Technological determinism** (e.g. in Hackathons, see Lodato & DiSalvo, 2019)
- **Episodic nature of stakeholder engagement** (at the start and end of Smart City projects)
- Limited avenues for city stakeholders to interrogate how their feedback has been incorporated into Smart City Solutions
- **Over-emphasis on technological-solutionism,** and less attention to the political processes that make it possible to interrogate assumptions, logic and algorithms used in Smart City technologies

The building blocks that make up the co-creative stakeholder engagement framework

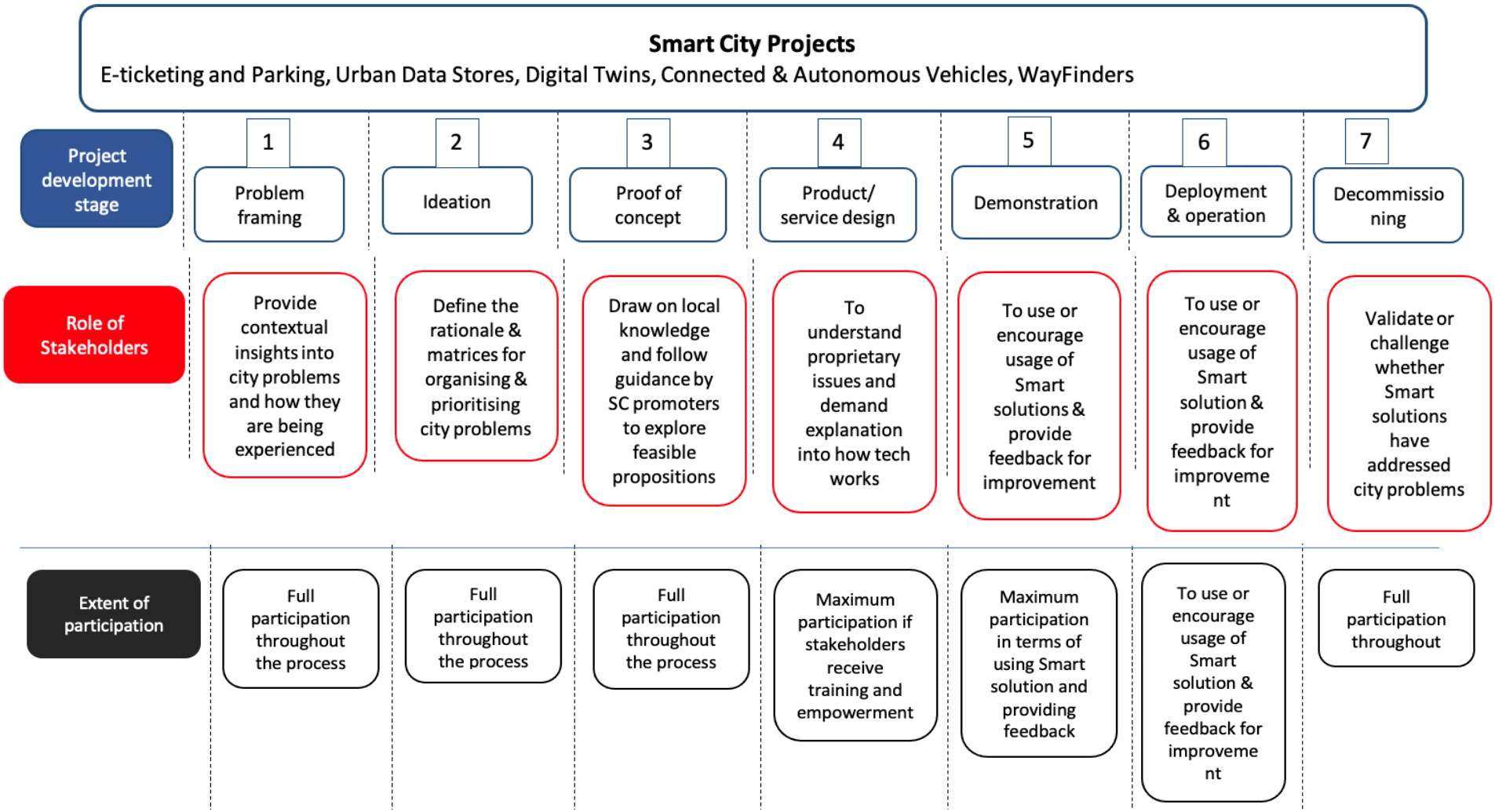


The co-creative stakeholder engagement framework

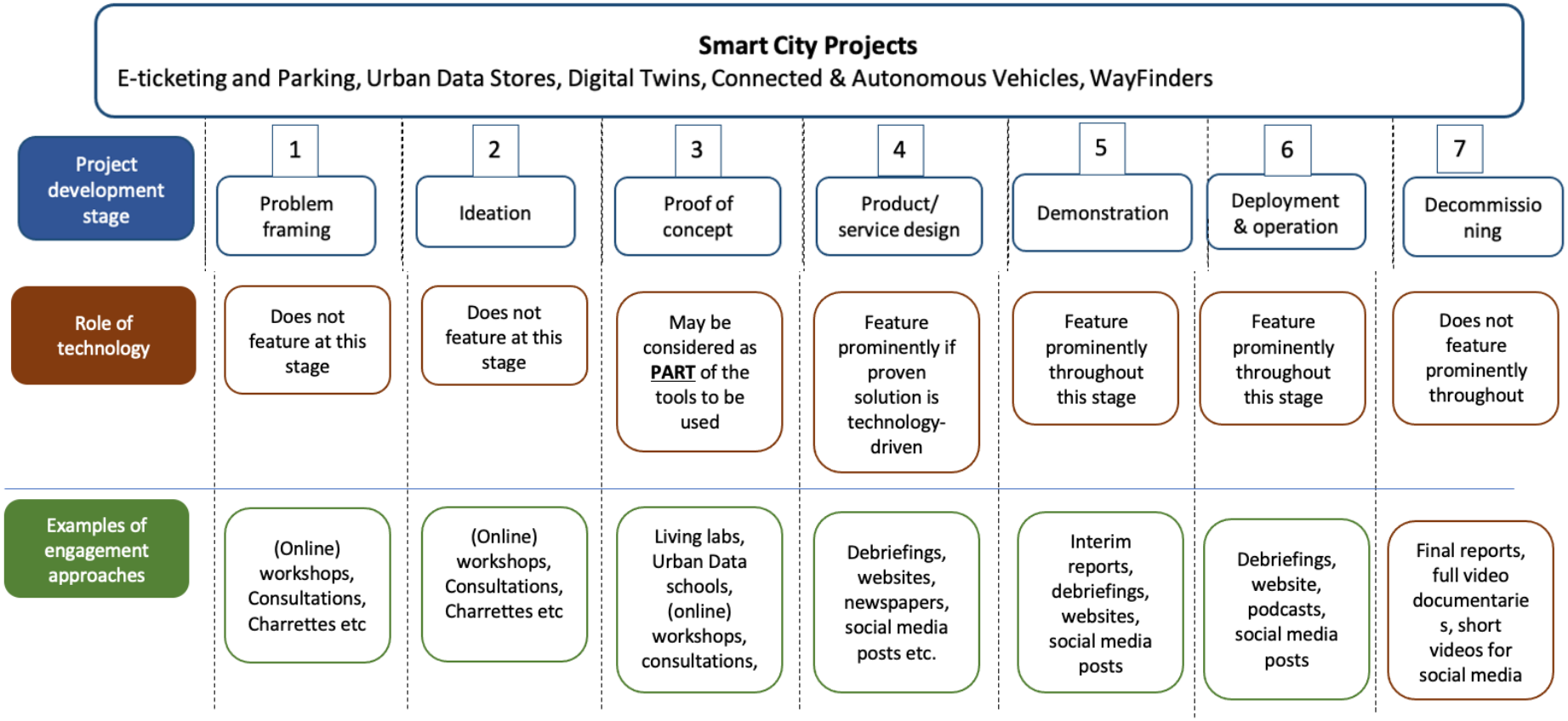
Smart City Projects
E-ticketing and Parking, Urban Data Stores, Digital Twins, Connected & Autonomous Vehicles, WayFinders

	1	2	3	4	5	6	7
Project development stage	Problem framing	Ideation	Proof of concept	Product/ service design	Demonstration	Deployment & operation	Decommissioning
Purpose of stakeholder engagement	To understand the nature & scale of city problems	To help stakeholders organise & prioritise city problems	To explore the workability of idea propositions	To develop the proven-concept with the help of technology	To explore functionality of technologies at a smaller scale	To facilitate discussions about full scale deployment	To facilitate discussion about termination of Smart City projects
Role of Smart City promoters	To organise, facilitate and empower stakeholders to identify city problems	To facilitate, support and empower stakeholders to organise & prioritise city problems	To empower & guide stakeholders through scenario development	To train stakeholders develop technology or understand the logic behind how tech. works	To oversee trials & ensure that stakeholders are informed about Initial insights	To provide stakeholder with relevant info. about the deployment & data issues	Share with stakeholders evidence of project outcomes

The co-creative stakeholder engagement framework



The co-creative stakeholder engagement framework



Critical issues worth noting from the framework

- Stakeholder empowerment throughout the life-cycle of Smart City development
- Rethinking stakeholder engagement from being a box-ticking exercise to one rooted in the principles of inclusion, transparency, co-creation and accountability
- Exploring new and bottom-up funding models, such as match-funding to break or weaken the control of big technology firms
- Creating incentives for non-technical stakeholders to participate, even at highly technical levels of Smart city development
- Deepening citizens' right to 'meaningful explanation' of the coding, simulation and processing of Smart solutions

Next steps for the research

- Examine the extent to which selected Smart City case study projects in the UK align with this co-creative framework of stakeholder engagement
- Solicit criticisms and suggestions from Smart City stakeholders (practitioners, academics, etc.) to make the framework practically relevant
- Conduct an empirical study into the incentives that would be needed, and obstacles that must be overcome, by different stakeholders in order to fully adopt this co-creative form of stakeholder engagement.

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