



# 'Smart' sustainable urban regeneration: Institutions, quality and financial innovation



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## ABSTRACT

Cities around the world are under pressure from population growth, frenetic global economic restructuring, and climatic perturbations. Some, like London, attract an excess of speculative, momentum or tax-informed inward investment to finance their intensification. Provincial towns, on the other hand, which sustain extractive metropolii, can wither without capital or talent. Sensible planning and calibrated regional investment is the antidote to polarisation but confronts an apparent 'smart' or 'sustainable' conundrum. Grandiose, technical megaprojects like Songdo or Masdar cities and sprawling, disconnected estates are an anathema. We articulate a putative smart and sustainable solution ('*smart-SUR*') with 'institutional', 'project' and innovative 'funding' components and explore mega-urban regeneration projects in the UK and Holland. *Smart-SUR* has geographical, procedural and teleological aspects. Its mechanism involves local engagement, institutional strengthening, tight project screening and innovative regenerative funding. Its outcome are inclusive, measured, and coordinated transformations which 'sweat' existing assets, counter the long-tail of educational failure, and catalyse productive local innovation.

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## 1. Introduction

In coming decades, (Floater, Rode, Friedel, & Robert Steering, 2014) conurbations confront unprecedented growth with internal and external challenges in the maelstrom of the 'infernal machine' (Bordieu, 1998: 100). Cataclysmic events like war, tsunamis or volcanic eruptions are dramatic examples of external threats. When Santorini erupted in the second millennium BC, it destroyed Akrotiri, and wiped out Minoan coastal settlements on Crete. In 79AD, Vesuvius buried Pompeii. Unlike the contiguous diffusion of pyroclastic flows, in modern times disruptive technologies leapfrog and undermine incumbents. Detroit illustrates how poor management of technological disruption can tip a chronically stressed system into terminal decline. Besides war or acute geological and technology shocks, alterations to trade, culture, migration, rainfall or climate can all unsettle settlement *status quo* (Hall & Hesse, 2013; Hopkins, 2014). One response is to build new garden or other cities. When its Nile tributary silted-up, the entire city of Piramesse in Egypt was re-located (Bietak, 1981).

As well as external perturbations, cities evolve endogenously or they stagnate. Planning complacency, corruption or

underinvestment in civic and public amenities can jeopardise progressive change. Poor management and diminished infrastructure can bequeath a toxic legacy of unstructured sprawl and pollution. In dystopic megacities, slums abut affluent, gated enclaves and resentment breeds. Unstructured urbanization spillovers manifest in poor health, air pollution, traffic congestion, psychologically stunted children and crime. Such spatial externalities consume 15% of Beijing's GDP and cost the United States economy US\$ 400 billion annually (Litman, 2014). The failure to tackle spatial and market externalities is neither 'smart' nor 'sustainable'. Sustainable prosperity impels inclusive and capable planning institutions, focused on green infrastructure (Acemoglu & Robinson, 2012; European Climate Foundation, 2010; Geltner & de Neufville, 2014; Turner, 2014). Foresight, policy coordination and judicious interventions could shift current dystopic urban trajectories towards more compact, connected, resilient and inclusive futures as a pre-requisite, but no guarantee of, *eudemonic* well-being (Wadley, 2010). In contrast to *hedonic* well-being, the *eudemonic* focus is competence, autonomy and relatedness, not material tokens of status.

Mega-projects like Songdago (Korea), Masdar (UAE), Skolkovo (Russia) or Dongtan (China) are 'unlikely to deliver widespread, lower level Maslovian sustainability (*ibid.*:19) and have high opportunity costs. Mega-projects are untamed political problems,

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invoking contested information (Bruijn & Leijten, 2008. Operational risks include, fraud, cost escalation, cack-handed oversight (Flyvbjerg, Bruzelius, & Rothengatter, 2003a). Mega-project outcomes can underwhelm, polarise communities or rapidly depreciate. Less grandiose urban transformation, involve territorial foresight, debate, local engagement, institutional collaboration, project scrutiny and smart finance (Adair, Berry, Hutchinson, and McGreal, 2007; Güell & Redondo, 2012). For Batty (2013), social innovation resolves the 'smart' technical or social paradox. Noting acute shocks, chronic stresses and contested futures visions, the research seeks a pathway for smart and sustainable urban regeneration ('smart-SUR') for eudemonic empowerment, which eschews profligate mega-construction or debilitating *laissez faire*.

**2. The problem**

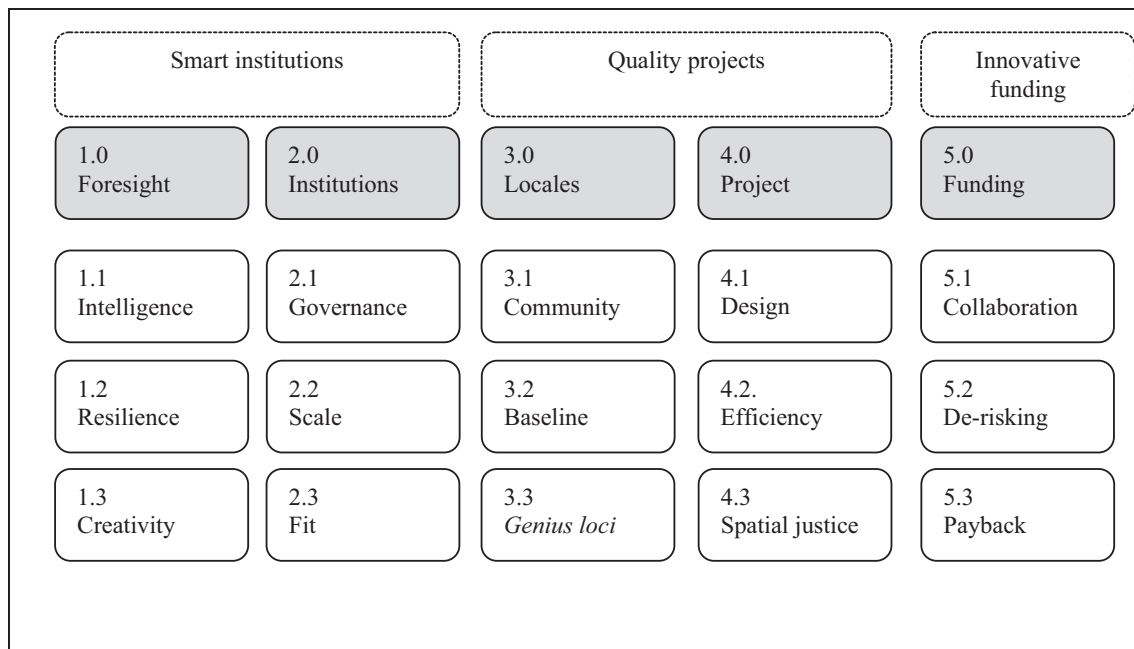
In coming decades, most global growth will be urban (Floater et al., 2014) yet planning regimes in many conurbations seem curiously ill prepared to tackle looming internal and external challenges in the maelstrom of the 'infernal machine' (Bordieu, 1998: 100). The purpose of this paper is to articulate and substantiate a smart and Sustainable Urban Regeneration ('smart-SUR') framework with procedural and multiple teleological dimensions, captured via smart institutions, quality projects, and innovative funding as illustrated in Fig. 1. Place-rooted and soundly administered, smart projects balance commercial with public realm considerations. The smart-SUR framework could help to inform resilience planning amidst the regional and local noise (Chorley and Haggett, 1965). It balances localism with informed transformation for employment, aesthetics, logistics, or distributive justice but it is tightly overseen and tempered by the rule of law. Site visits and grassroots consultation restrain excess and refine transformative goals for beautification, pedestrian connectivity, waste management, network connectivity, or ecological conservation.

Urban threats and current urban policy flux impel the smart-SUR theoretical framework. An elaboration of the institutional, project and funding aspects of the putative model provided some discursive corroboration of its relevance as a screening tool for planners, developers, financiers, or residents. Remote, secondary data testing of the screening tool flagged the need for site visits and grounded analysis, conducted for a regeneration project in Utrecht, Holland (see Figs. 2 and 3).

**3. Threats impelling a smart response**

Cities confront unprecedented internal and external challenges. Cataclysmic ones include war, tsunamis, or volcanic eruptions. When the Thera (Santorini) volcano erupted in the second millennium BC, it destroyed Akrotiri, and wiped out Minoan coastal settlements on Crete. In 79AD, Vesuvius buried Pompeii. Unlike the contiguous diffusion of pyroclastic flows, in modern times disruptive technologies can leapfrog and undermine incumbent urban industries. Detroit illustrates how inadequate strategic response to technological disruption can tip chronically stressed systems into decline. Besides war or acute geological and technology shocks, alterations to trade, culture, migration, rainfall, or climate can all unsettle settlement *status quo* (Hall & Hesse, 2013; Hopkins, 2014). The response to catastrophe varies with regime priorities and capabilities. When its Nile tributary silted-up, the entire city of Pi-Ramesses in Egypt was re-located (Bietak, 1981).

Apart from dramatic external threats, constraints or endogenous forces can lead to dystopic urban trajectories and bequeath malignant outcomes, involving congestion or a toxic legacy of unstructured sprawl and pollution (e.g. Delhi in India). Dystopic megacities are characterised by planning complacency, poor management, corruption, or underinvestment in civic and public amenities. Resentment breeds in slums that abut affluent, gated enclaves. Unstructured urbanization spillovers manifest in poor health, air pollution, traffic congestion, psychologically stunted children, and crime. Such spatial externalities consume 15% of



**Fig. 1.** Outline of putative smart-SUR conceptual framework, involving institutional, project and funding dimensions. Source: Authors (2014), adapted from Thomas et al. (2000), LópezLópez, Thomas, and Wang (2008), von Brown and Gatzweiler (2013) and Floater et al. (2014). Smart institutions presume sound macro policy at the national scale with policies to incentivise balanced development and correct market failure. At urban scale, the green 'design' aspect incorporates conservation of 'natural capital' and 'connectivity'. Technical progress and productivity sit within 'efficiency'. 'Spatial justice' and 'resilience' addresses marginality and social exclusion.

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