A Sustainability Analytics Platform for Smart Policymaking in India

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Research problem

» Abundance of smart city rankings - private, government-sponsored and university-led

» City rankings has been unable to adequately communicate how the outcomes from such assessments can be used as an instrument for shaping policy frameworks (Rudolf Giffinger & Gudrun, 2010)

» The ranking systems remained relatively closed, with the underlying data, analytical approaches and outputs locked inside the organisations that undertake them (Kitchin, Lauriault, & McArdle, 2015a)

» Fall short in shaping a dialogue around urban conditions

Indicators

Demographic and Social structure

Economy and Jobs

Education and Health

Physical Infrastructure

Governance

Mobility and Transport

Housing

Digital Connectivity


Lifestyle and Behaviour

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Clusters of 100 smart cities
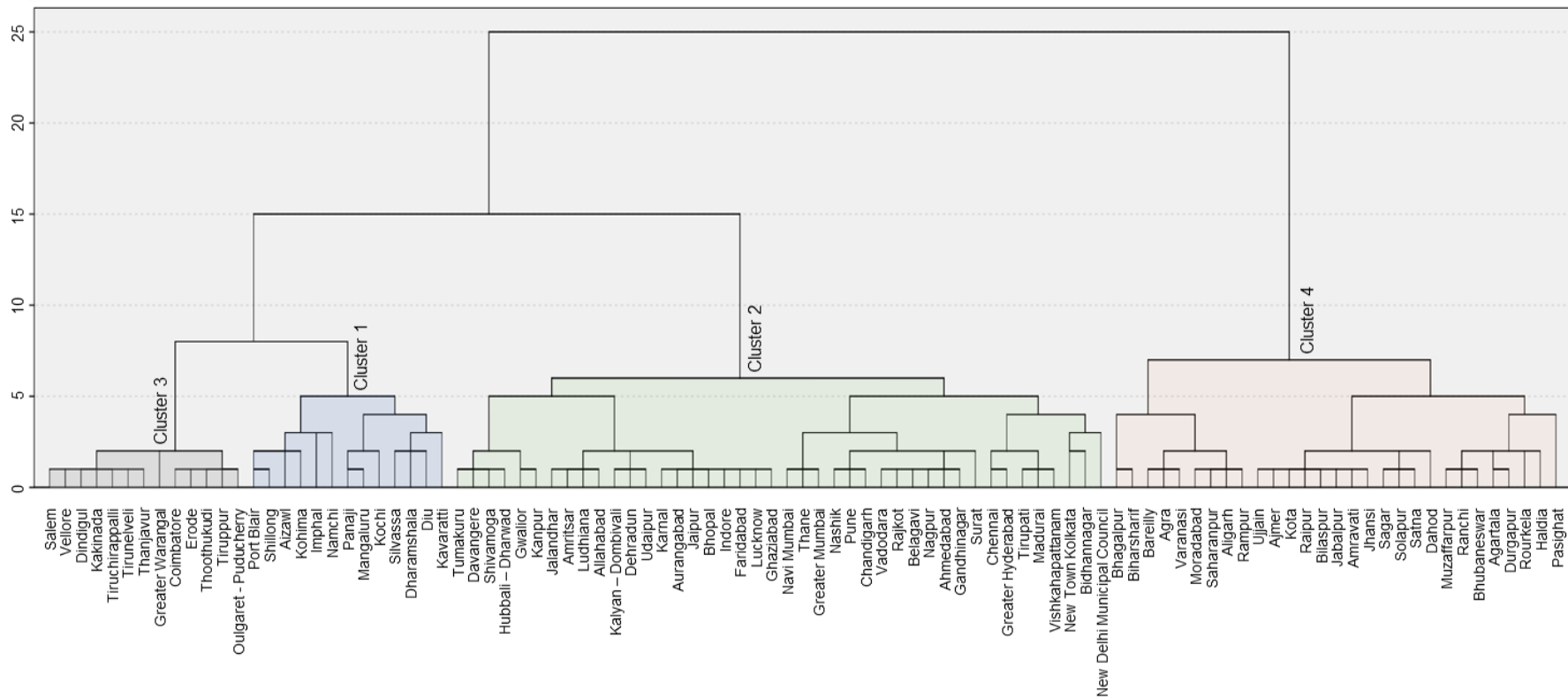
Significant factor loadings

Variables	Development Axis		
	1	2	3
% of households using mobile phones	**.236**[*]	.123	.195
Tertiary education centres/1000 population	**.180**[*]	.127	.095
Modal share of public transport	**.174**[*]	.057	.066
% of hh availing banking services	**.158**[*]	.070	.156
% of city population living in slums	**.122**[*]	.058	.042
Physicians/1000 population	**.110**[*]	.067	.063
Hospital beds/1000 population	**.109**[*]	.058	.073
Gross enrolment ratio in higher education	**.102**[*]	.072	.007
% of hh with sewerage connection	.037	**.463**[*]	.066
% of hh with stormwater drainage connection	.009	**.379**[*]	.044
% of hh having latrine within premises	.145	**.242**[*]	.160
Average trip length in km	.025	**.216**[*]	.085
% of hh connected to Internet	.077	**.185**[*]	.038
% of hh having computer/laptop	.123	**.176**[*]	.073
Coverage of municipal solid waste (MSW)	.031	**.154**[*]	.110

Discriminant score plots for each city
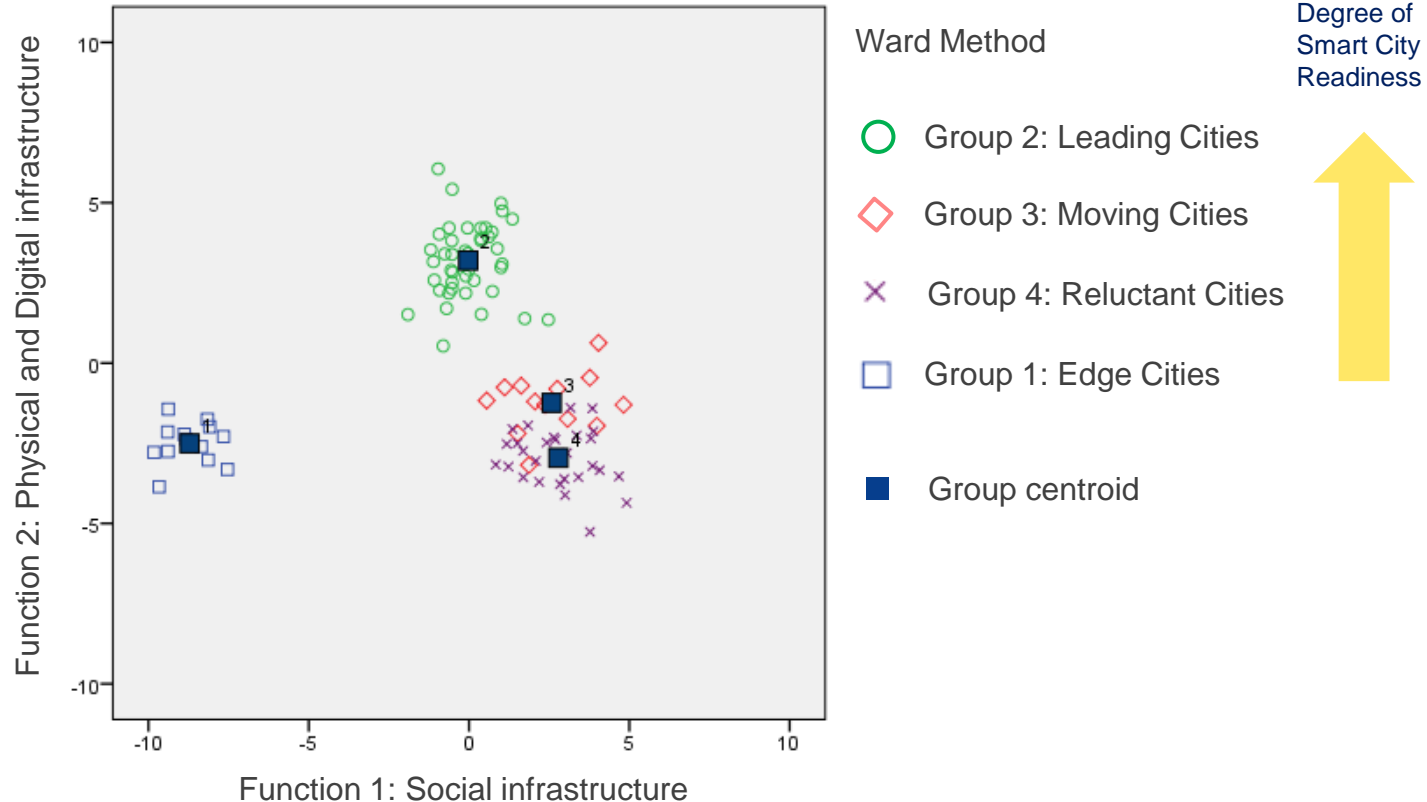
Edge cities

» Leverage gender inclusivity and high level of literacy

» Develop water, waste and public transport infrastructure

» Improve digital connectivity

» Enhance the capacity of ULBs

Reluctant cities

» Key focus on sanitation and solid waste management

» Address issues of slums

» Improve health infrastructure

» Empower local corporations

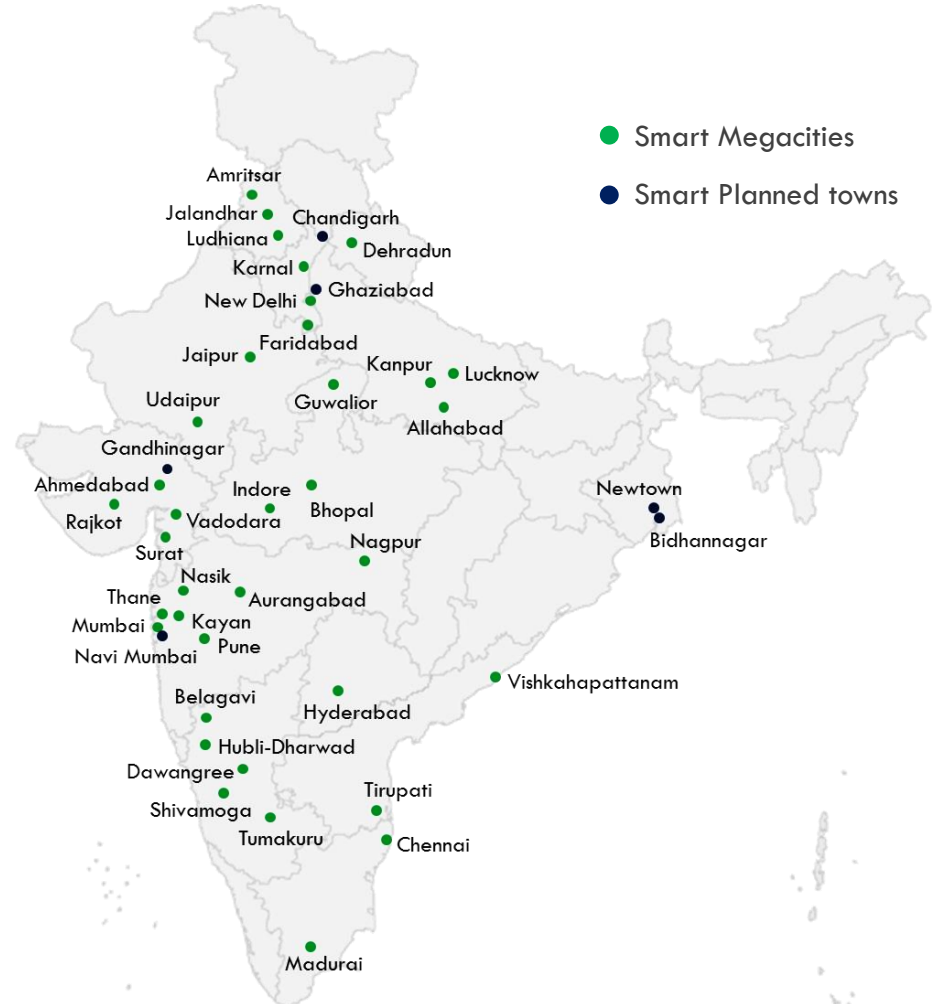# Moving cities

» Health and knowledge-based development

» Need substantial wired infrastructure
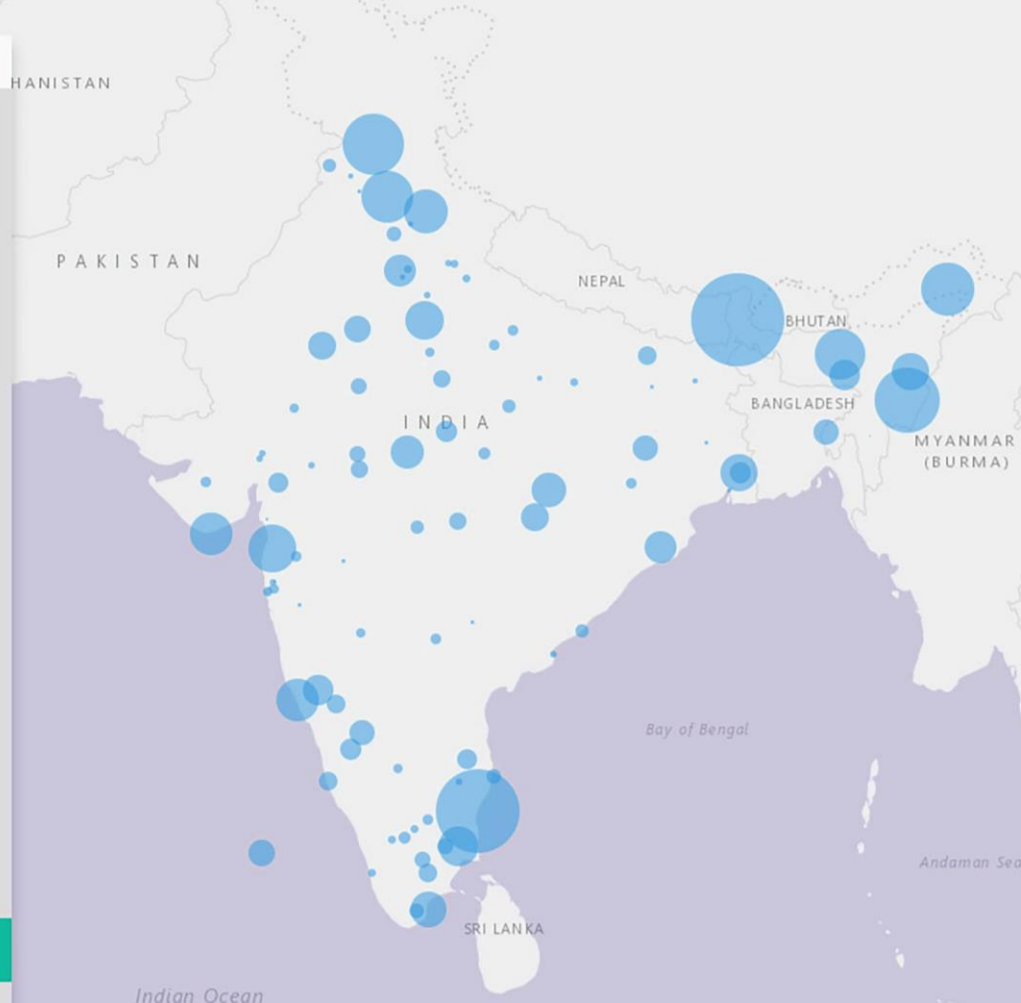
» Must continue the positive momentum

Leading cities

» High-intensity infrastructure and next-generation digital technology frontier cities

» Command and control center for reliability and efficiency

» ICT-led solutions

» Open data and innovation economy

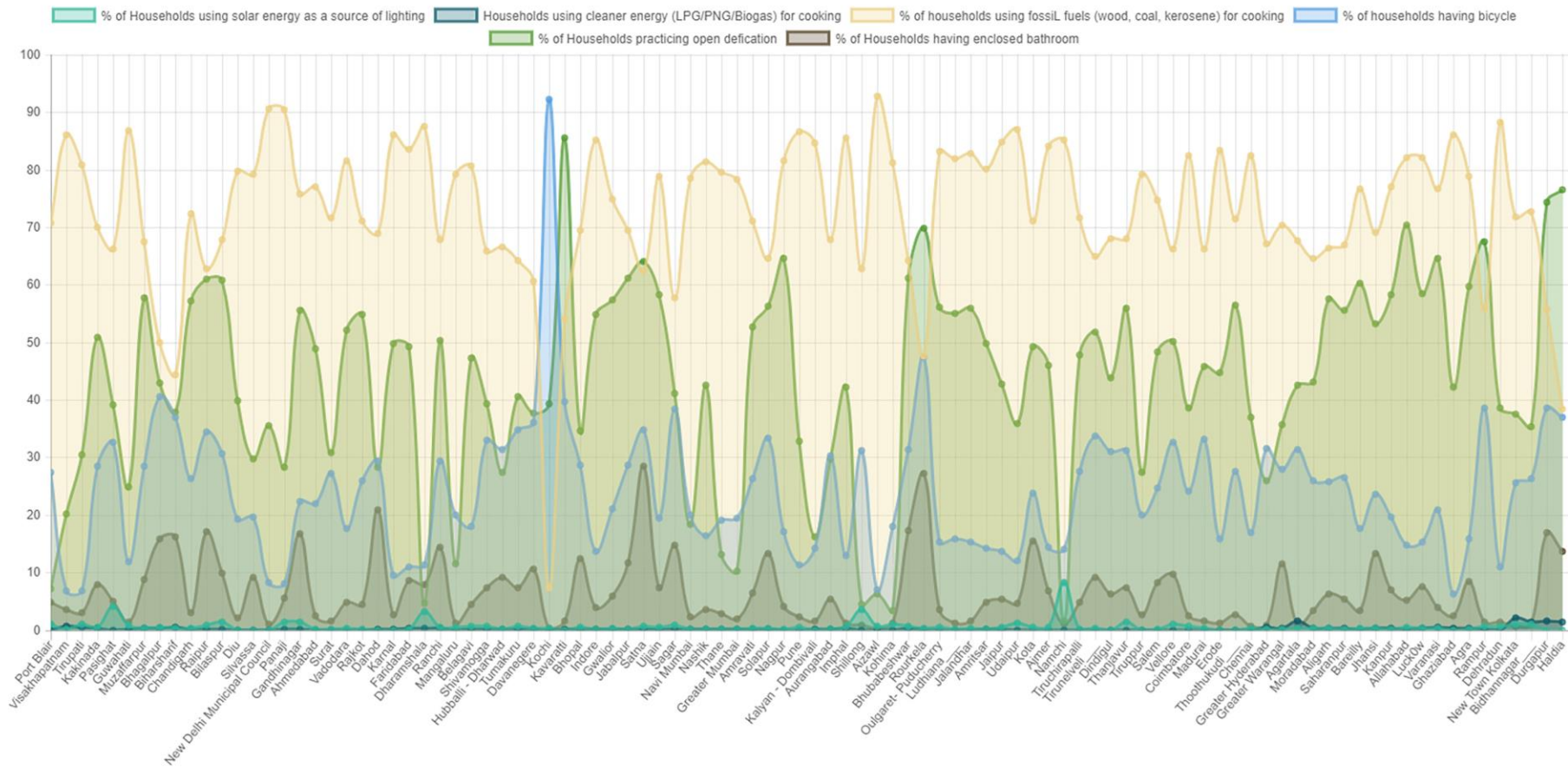# Availability Skills and Creation Pool

Legend: % of Households using solar energy as a source of lighting | Households using cleaner energy (LPG/PNG/Biogas) for cooking | % of households using fossiL fuels (wood, coal, kerosene) for cooking | % of households having bicycle | % of Households practicing open defication | % of Households having enclosed bathroom

Conclusions

» System science approach – pattern recognition algorithm

» Supports place-based smart city strategies to address the local needs

» Elucidates complex structure, processes of cities amidst the emerging data deluge

» A platform for open sharing of city data for shaping dynamic conversations

» Future research and development opportunities

Publications

Praharaj, S., Han, H. and Hawken, S. (2017). Innovative civic engagement and digital urban infrastructure: Lessons from 100 Smart Cities Mission in India, Procedia Engineering Journal, Volume 180, Pages 1423-1432.

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Australia-India Knowledge Exchange Whitepaper

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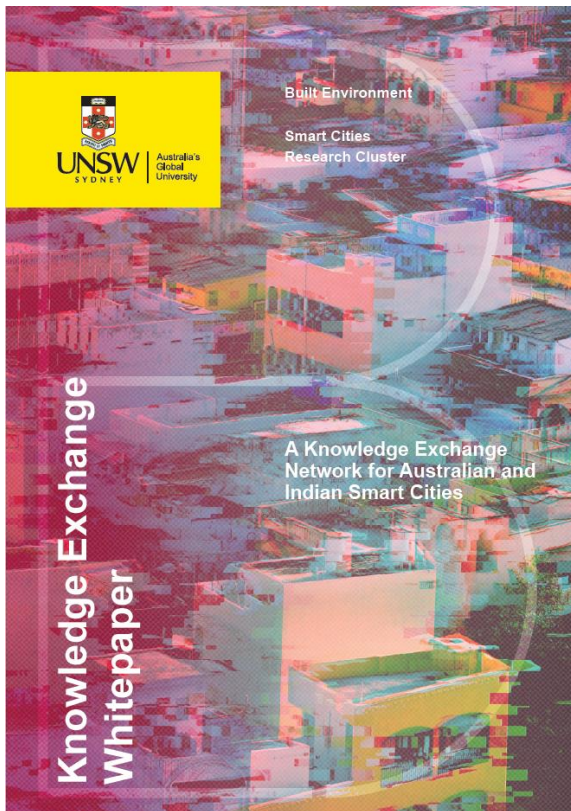
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