

# India's *Smart Cities Mission*: Lesson in Disruption

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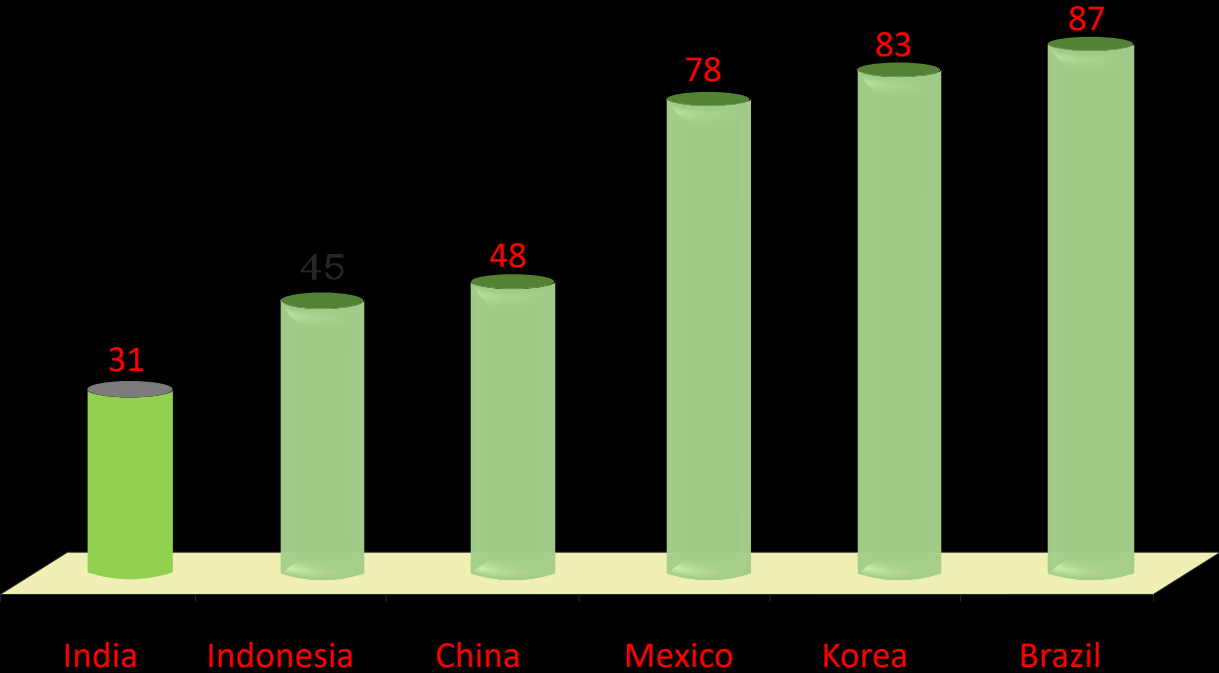
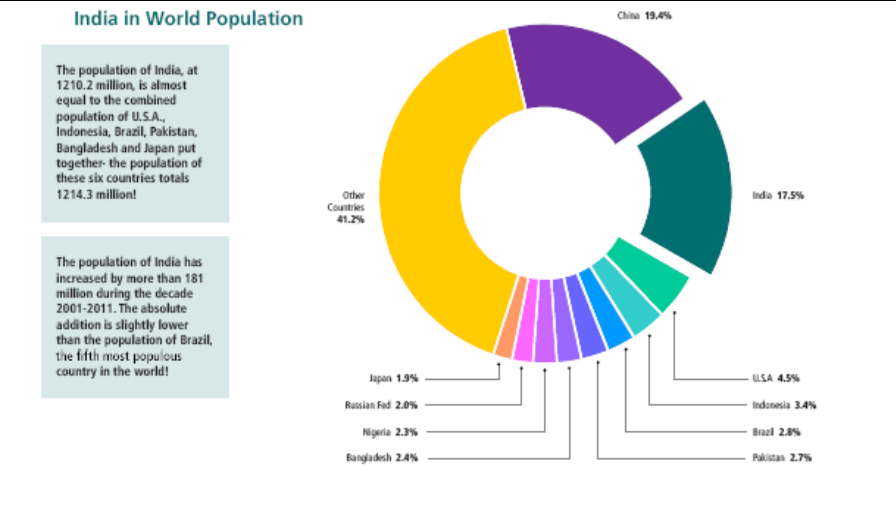
# Contents

- India's urban context
- What the Smart Cities Mission set out to do
- Incremental Transformation: a visualization
- What worked; What didn't work
- Lingering doubts

India's urban context:

The rocky road from neglect to aspiration

# The “reluctant urbanizer”



Source: United Nations and Government of India

	2001 Census	2011 Census	Incr.
Total Towns	5161	7935	2774
Statutory Towns	3799	4041	242
Census Towns	1362	3894	2532
Out Growths	962	981	19
Urban Agglomerations	384	475	91
Class I cities	441	496	55

# Changing the narrative: from “India lives in its villages” to “Urban India”



Mani & Chowfla Architects, Amanora Township, Pune, 2006

# India's 'Urban Awakening'

McKinsey Global Institute, 2010

## Opportunities

- Net increase in working age population will be 270 million by 2030
- **70% of new jobs will be in cities**
- 91 million households will be middle class, up from 22 million in 2010

## Challenges

- 700-900 million sqft of commercial and residential space to be added  
( **A new Chicago to be built every year!**  )
- 2.5 billion sqm of roads to be paved, 20 times the capacity added in previous decade
- 7400 kms of metros to be built, 20 times the capacity added in previous decade

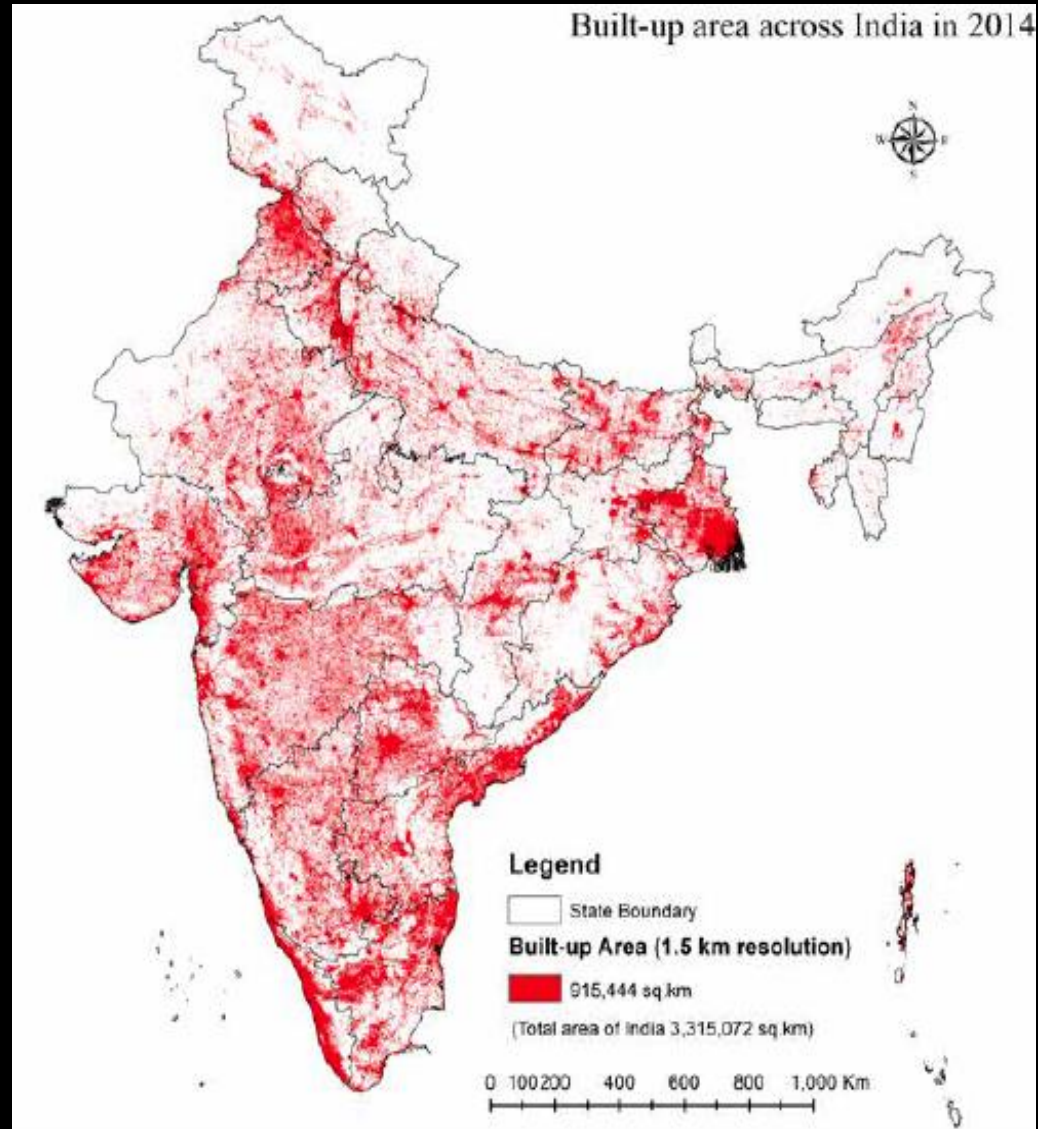
## "Building blocks of sustainable urban living"

- Unlocking 1.2 billion USD in urban investment
- **Planning matters**
- Affordable housing for all
- **Empowering city administrations**



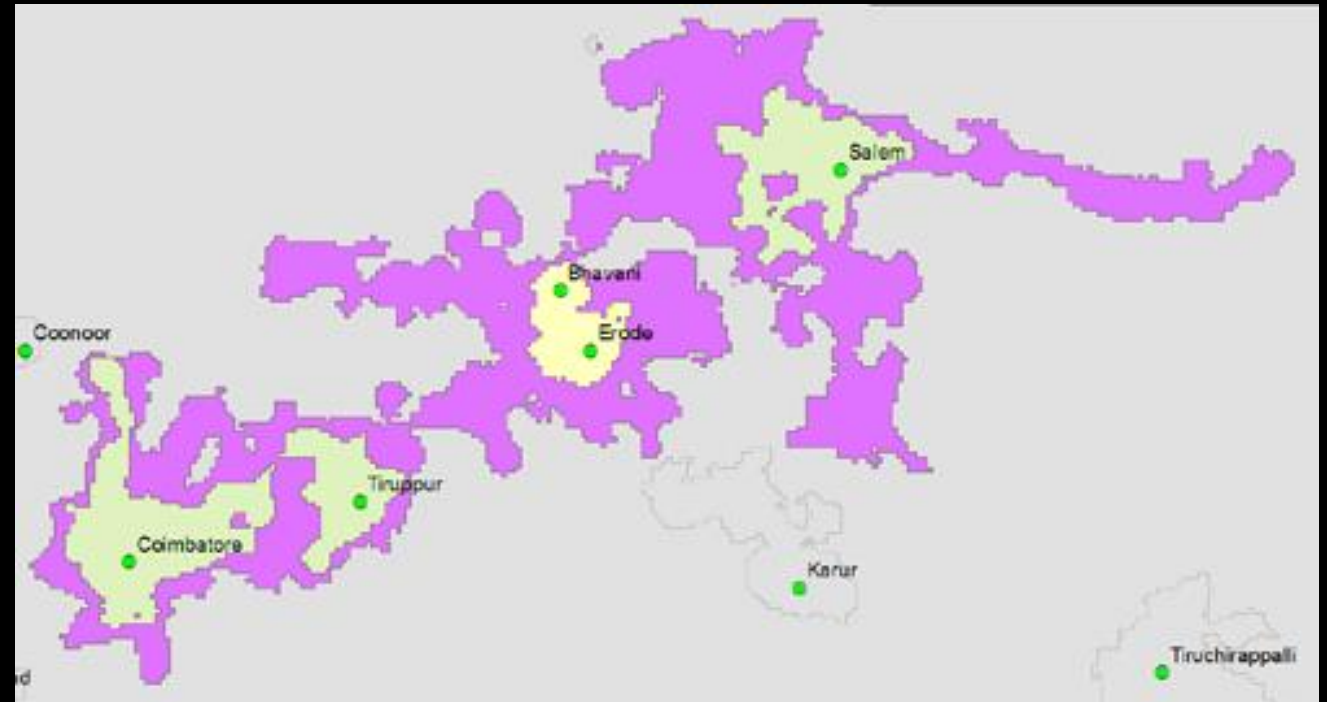
# How Urban is India?

Economic Survey 2016-17, Government of India

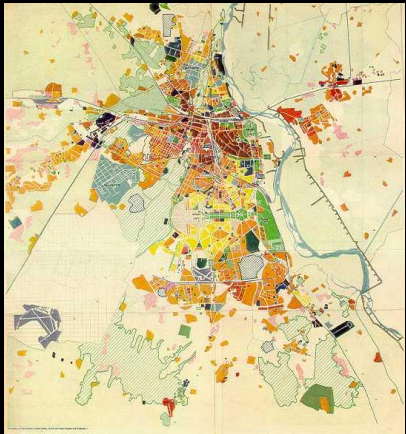


# 'Messy' and 'hidden' urbanization

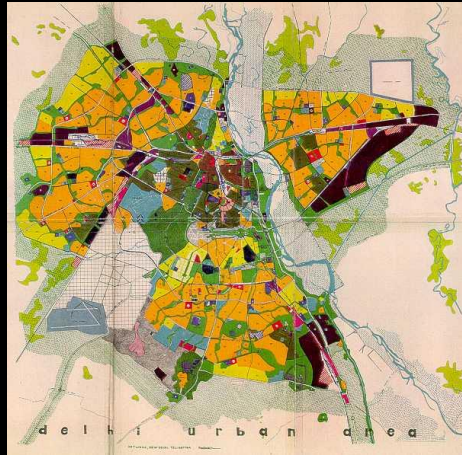
World Bank, 2015



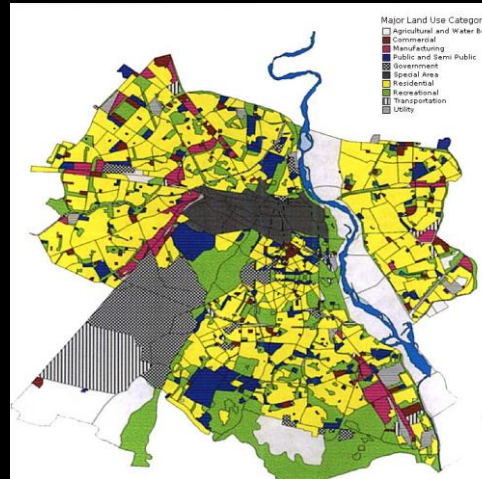
# The 'master plan' fetish



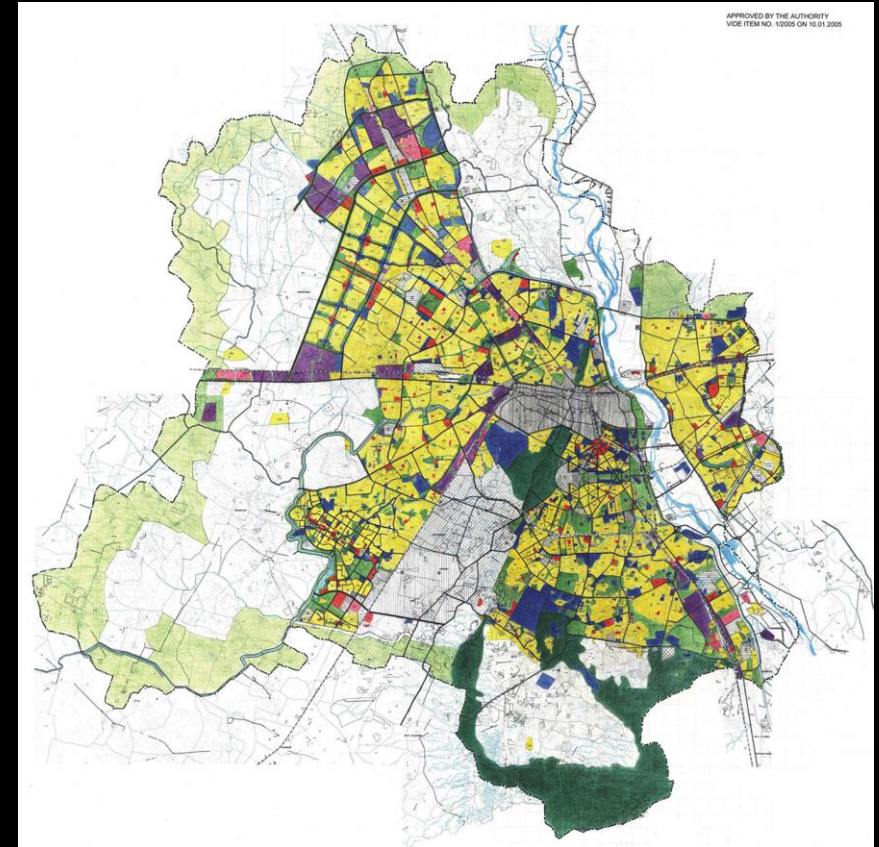
Delhi, 1951



1962-1981



1981-2001



2001-2021



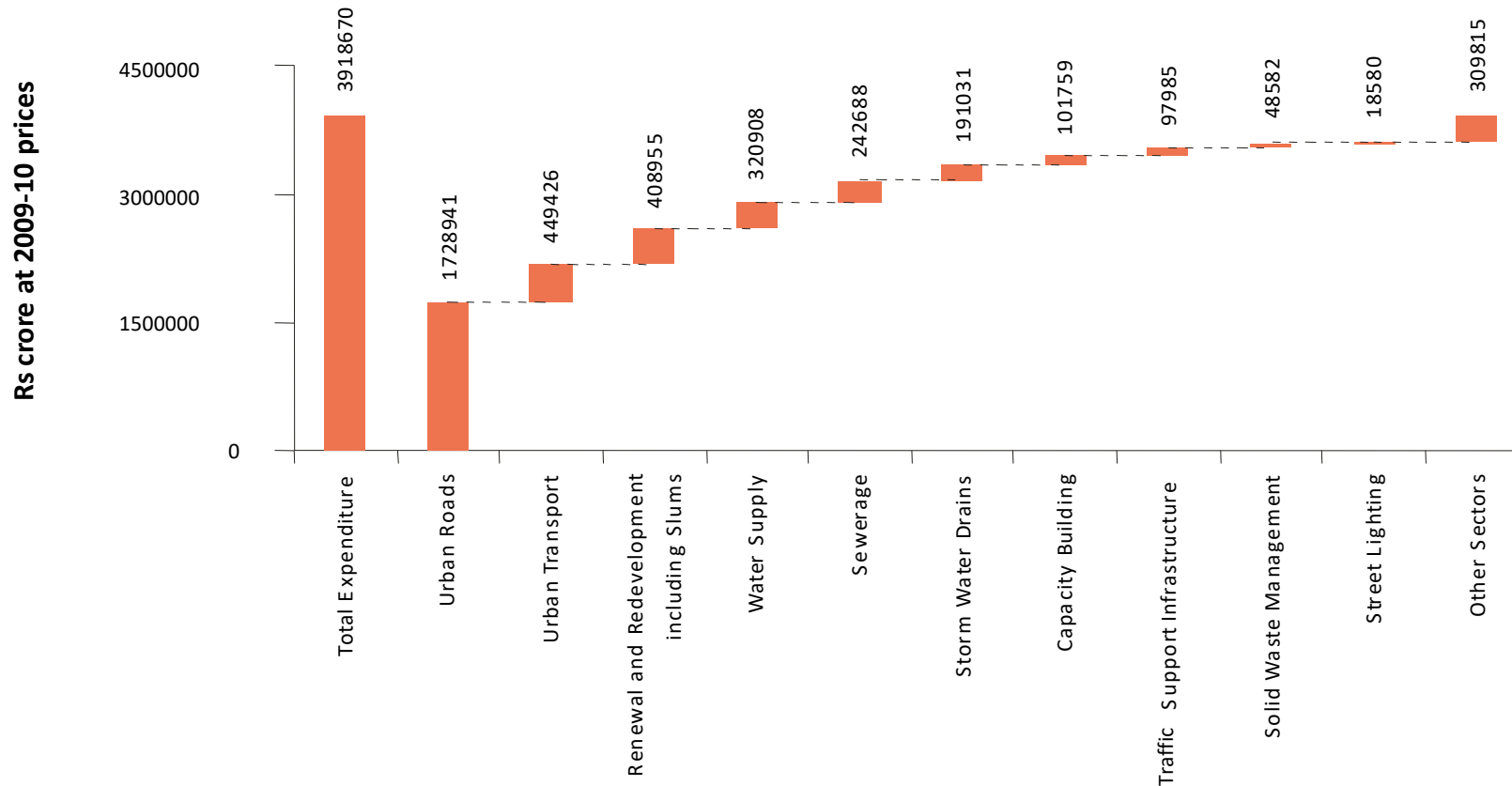
# The besieged municipality: a constitutional travesty

## 74<sup>th</sup> AMENDMENT TO THE CONSTITUTION OF INDIA, 1993 (THE 12<sup>th</sup> SCHEDULE)

1. Urban planning including town planning.
2. Regulation of land-use and construction of buildings.
3. Planning for economic and social development.
4. Roads and bridges.
5. Water supply for domestic, industrial and commercial purposes.
6. Public health, sanitation conservancy and solid waste management.
7. Fire services.
8. Urban forestry, protection of the environment and promotion of ecological aspects.
9. Safeguarding the interests of weaker sections of society, including the handicapped & mentally retarded.
10. Slum improvement and upgradation.
11. Urban poverty alleviation.
12. Provision of urban amenities and facilities such as parks, gardens, playgrounds.
13. Promotion of cultural, educational and aesthetic aspects.
14. Burials and burial grounds; cremations, cremation grounds and electric crematoriums.
15. Cattle pounds; prevention of cruelty to animals.
16. Vital statistics including registration of births and deaths.
17. Public amenities including street lighting, parking lots, bus stops and public conveniences.
18. Regulation of slaughter houses and tanneries.

# Urban infrastructure investment requirement (2010-30)

Estimate by the High-Powered Expert Committee, 2011: **INR 39.2 Trillion (~USD 0.5 Trillion)**



- Does not include Primary Education, Primary Health, and Electricity Distribution; also **does not include land cost**
- Additional **INR 20 Trillion (~USD 0.3 Trillion)** for operation and maintenance of assets- old and new

# The Challenges of Urbanization in India

Approach to the 12th Five Year Plan (2012-17)

**India spends \$17 per capita per year in urban infrastructure, whereas the most benchmarks suggest a requirement \$100.**

## THRUST AREAS

- Inclusive cities
- Urban governance
- Financing
- Planning
- Local capacity building
- Affordable housing

**“India also needs to start a political process where the urban issues are debated with evolution of meaningful solutions.”**

What the Smart Cities Mission set out to do



# Why the Smart Cities Mission?

1. Need for speed
  - The decadal turnaround (China, Brazil)
  - Infrastructure development not a benign process – opportunities of entire generations are lost as ‘collateral’ to urban development
2. Transformation must be sustainable: transparent, participative and holistic
3. Cost of failure is unaffordable: the city manager needs to be assured and confident in planning and execution
4. Decision-making can be improved through digitalisation:
  - Targeting: knowing who needs government the most
  - Scoping: knowing the size and scale of a phenomenon
  - Correlation: establishing causality and attribution
  - Measurement: quantifying the objective indicators that can prevent whimsical and discretionary decision-making, destroying trust between government and public

# Digital India: The backbone of “minimum government maximum governance”



<b>12.9 billion</b> Aadhar based authentication done	<b>558 million</b> Aadhar payment bridge accounts	<b>Aadhar UID</b>
<b>3.6 billion</b> eKYCs done in 3 years		<b>e-KYC</b>
<b>8.7 million</b> eSigns done in FY16	<b>223%</b> YoY growth over FY15	<b>e-Sign</b>
<b>8.8 million</b> users	<b>11.9 million</b> Documents uploaded	<b>DigiLocker</b>
<b>~76 million</b> Monthly UPI Transactions	<b>INR ~750 billion</b> Monthly value	<b>UPI</b>
<b>87 million</b> Businesses registered	<b>39.7 million</b> Returns filed in July '17	<b>GSTN</b>

12 digit unique number based on biometric and demographic data



Rs. 5.2k billion transferred

Paperless KYC process, wherein the identity and address of the subscriber are verified electronically through Aadhar



200 mn+ Subscribers in 2 years

Replaces manual paper based signatures by allowing Aadhar holders to electronically sign documents



Crossed Rs. 800 billion in deposits

Platform for issuing and verifying documents digitally using cloud storage linked to Aadhar



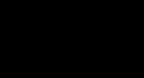
Rs. 100 billion monthly transactional value

Enables all bank account holders to send and receive money instantly using smartphones without bank account information



Rs. 9.68k billion total tax collected

Unified indirect tax administration platform for the entire country to handle invoices, returns, registration and payments



# Rethinking Cities

Ed Glaeser and Abha Joshi-Ghani

- Economies of agglomeration
  - Density increases the ease of moving goods, people and ideas
- Specialized business services and mix of industries
  - “Thick urban labour markets”
- Speeding the flow of ideas
  - “wellsprings of innovation” (Jane Jacobs)
- Spillovers of knowledge and the ‘returns to education’
  - Education of an area reflects both ‘selection’, the in-migration of the skilled, and ‘treatment’, the education of the citizenry
- Nurturing enterprise

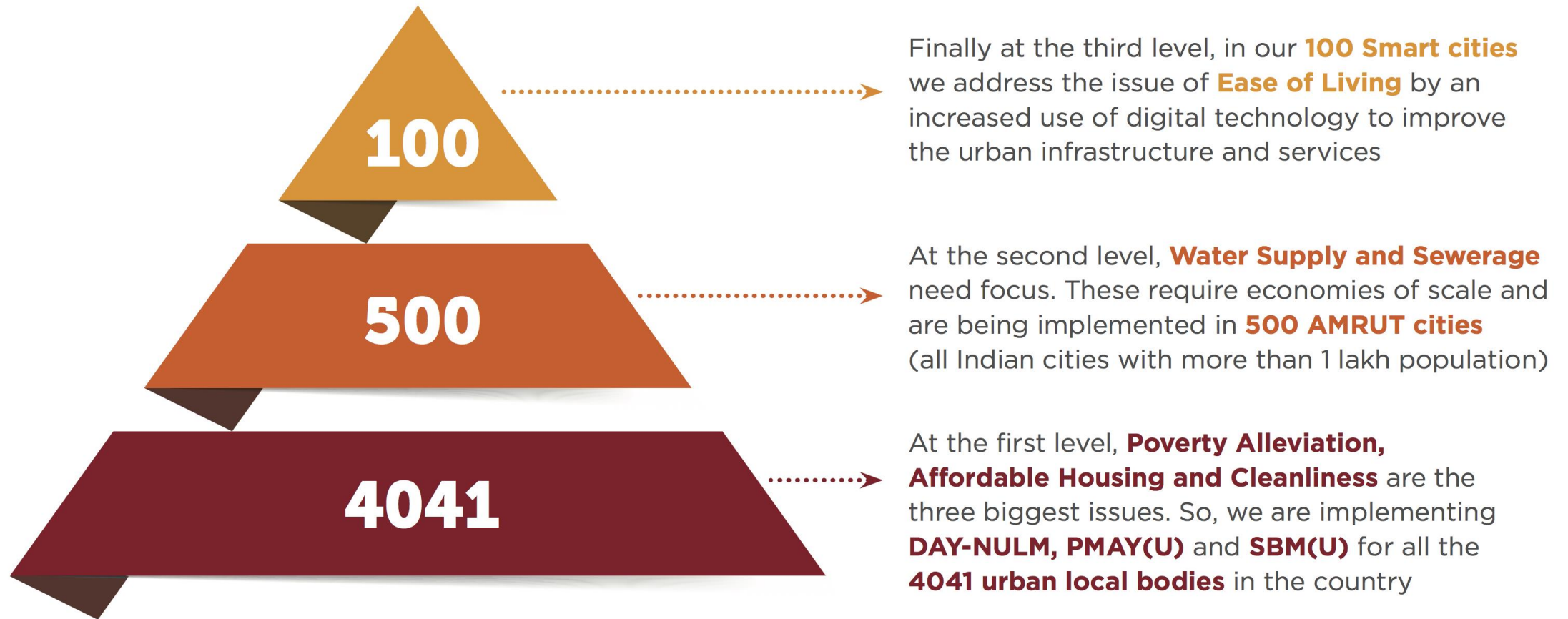
# Leverage National 'Infrastructure'





# Leverage Strategic Investments

(A sort of 'Maslow Urbanism')



# Leveraging the diversity of cities



MUMBAI

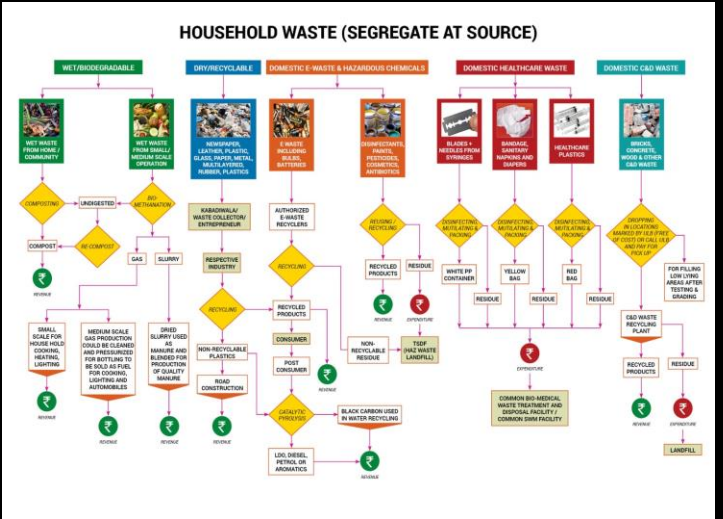
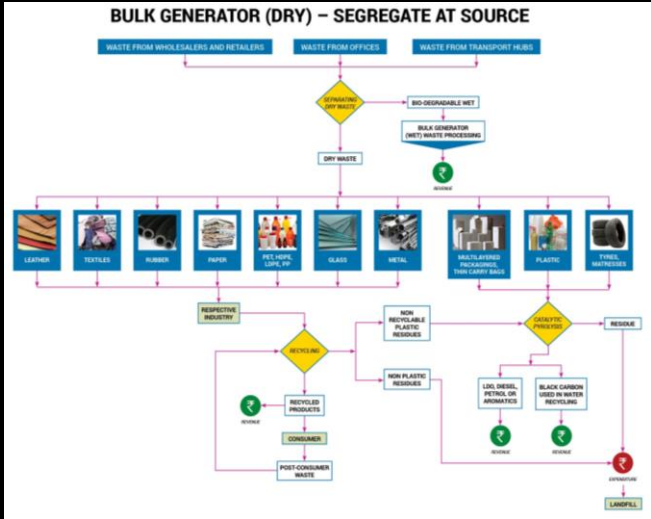
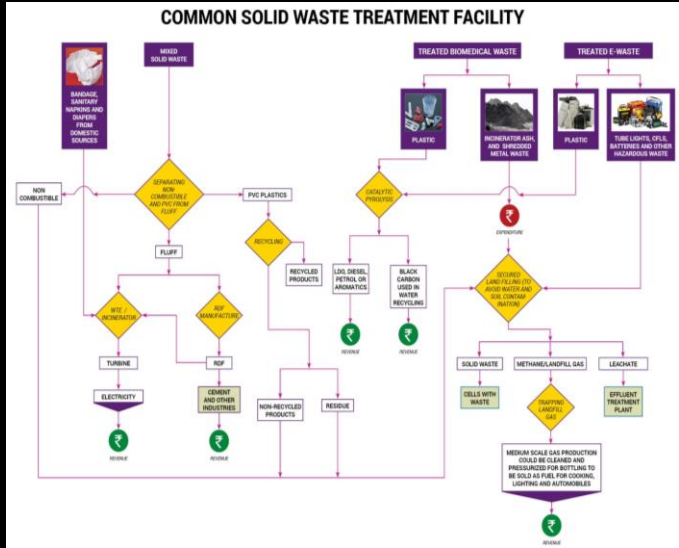
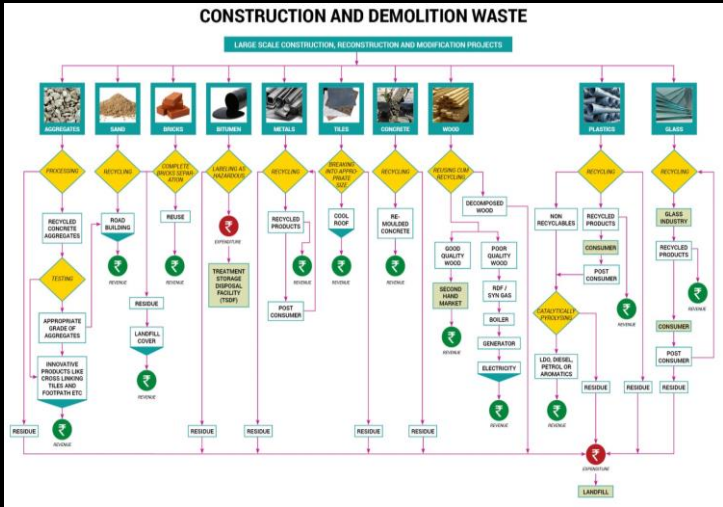
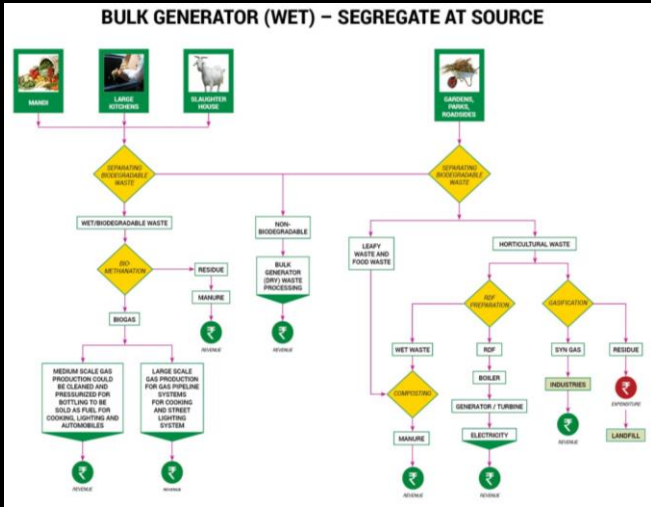


DELHI



KOLKATA

# Leveraging City Sciences



# Mission Transform-nation



“Drive economic growth & improve quality of life by enabling local development and harnessing technology as a means to create smart outcomes for citizens”

## MISSION MODE DELIVERY

### SMART CITY CHALLENGE:

two stages; three rounds; 109 competitors; standard template with 74 questions; log frame; annex 3, 4; jury

### THE SMART CITY PROPOSAL/PLAN

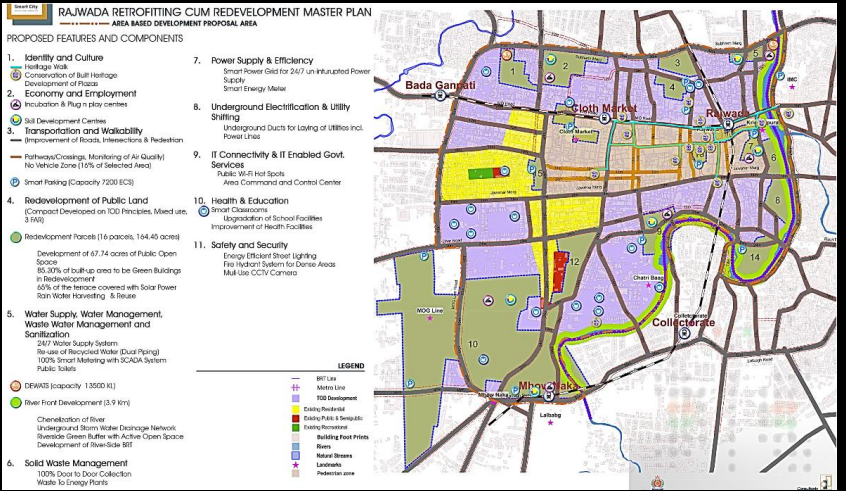
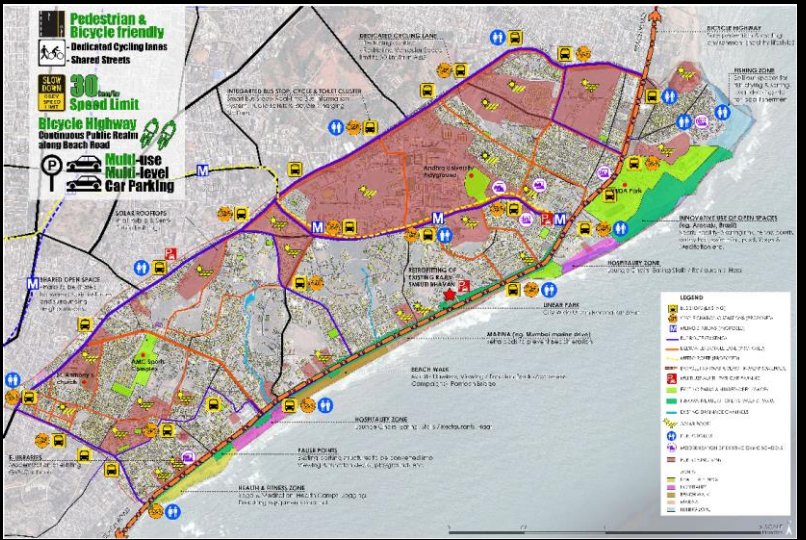
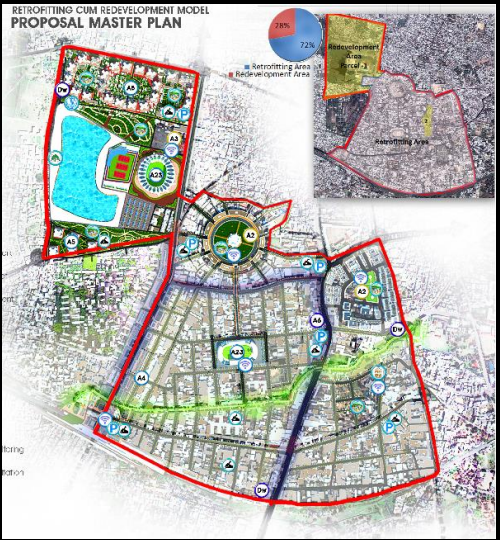
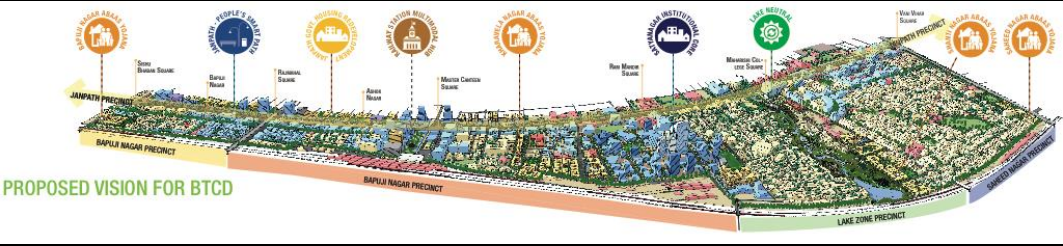
- Citizen Engagement
- Area Based Development
  - Retrofit (500 acres+)
  - Redevelop (50 acres+)
  - Greenfield (250 acres+ with 80% 'green' buildings)
- Pan-city solutions
  - ICT for service delivery & efficiency
- Integrated Planning and Convergence
- Replication and Scaling strategy

### THE SPECIAL PURPOSE VEHICLE

- Limited company incorporated under Companies Act, 2013
- Plan, Implement, Manage, Operate, Monitor

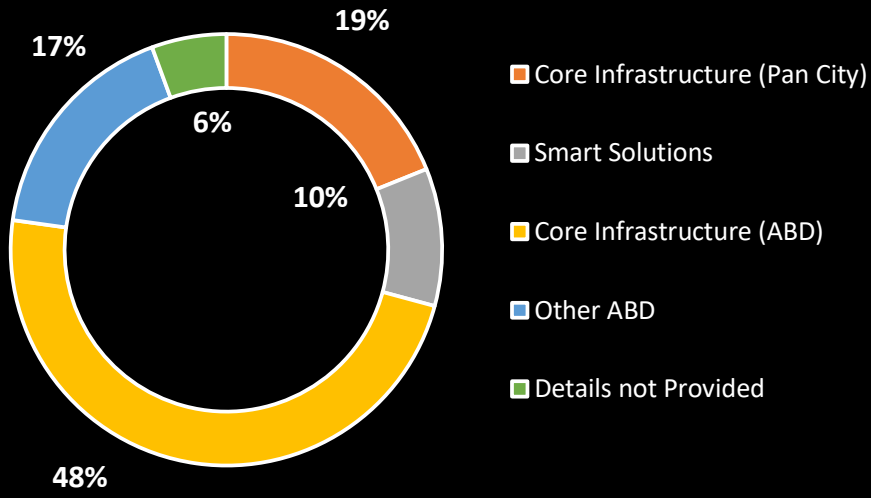


# 'Smart' Plans

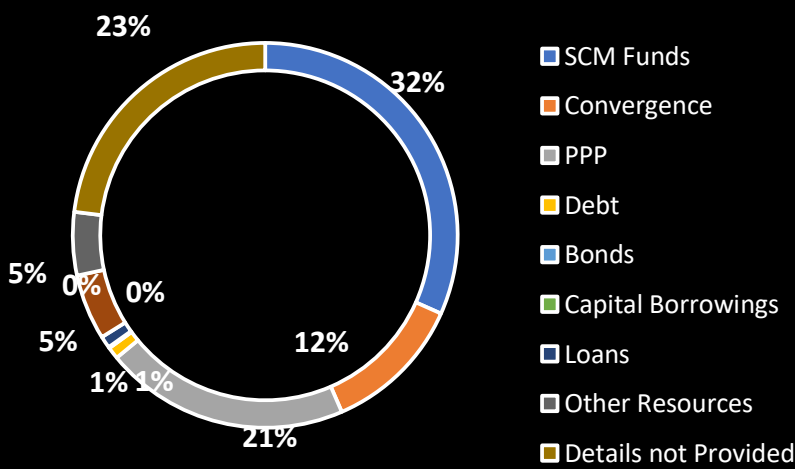


# 'Smart' Outcomes

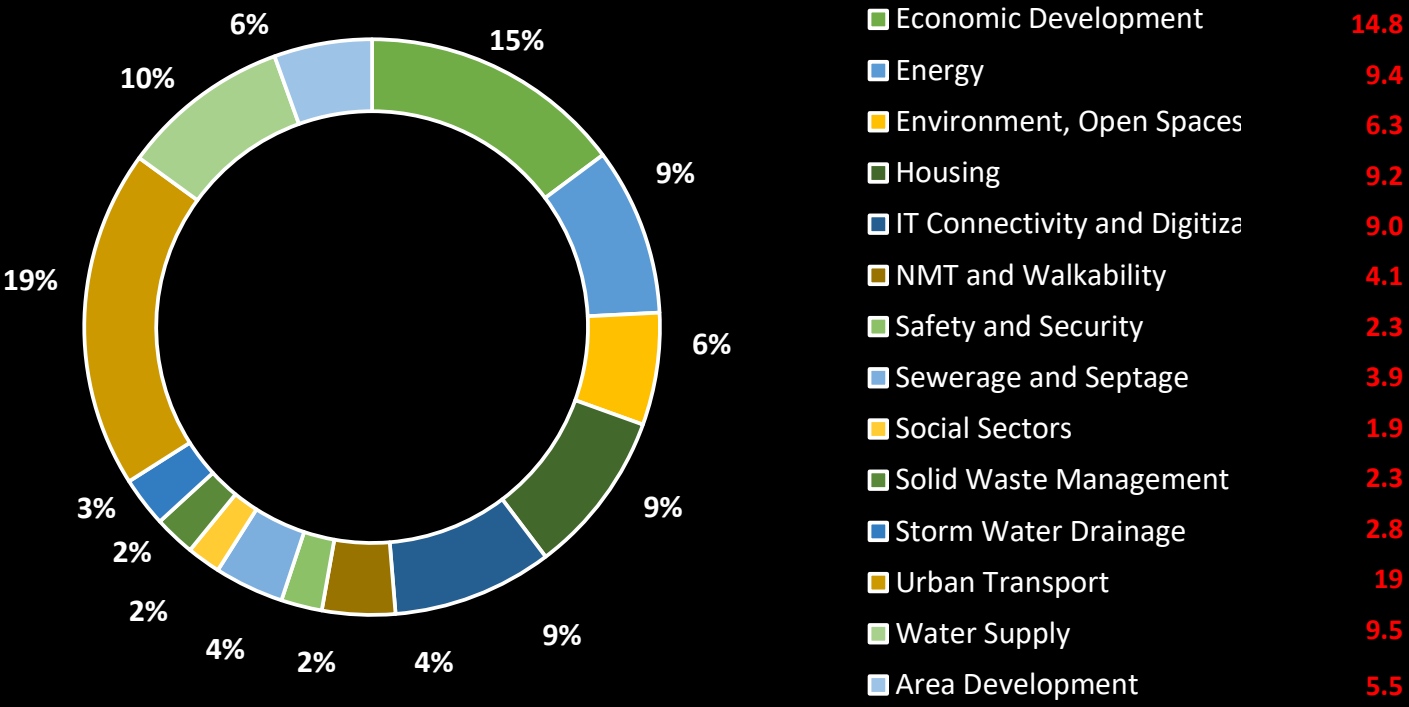
Category wise Distribution of Costs  
(Total ~USD 22 Billion)



Sources of Funds



Sector-wise Distribution of Project Costs (Total : INR 1531486.3 crore; ~USD 22 Billion)



Economic Development	14.8
Energy	9.4
Environment, Open Spaces	6.3
Housing	9.2
IT Connectivity and Digitiza	9.0
NMT and Walkability	4.1
Safety and Security	2.3
Sewerage and Septage	3.9
Social Sectors	1.9
Solid Waste Management	2.3
Storm Water Drainage	2.8
Urban Transport	19
Water Supply	9.5
Area Development	5.5



# Monitoring 'Smart'

**City Livability Index:** 79 indicators, 116 cities (June 2018)

- **Pillar: INSTITUTIONAL**
  - Category 1: **governance**
- **Pillar: SOCIAL**
  - Category 2: **identity and culture**
  - Category 3: **education**
  - Category 4: **health**
  - Category 5: **safety and security**
- **Pillar: ECONOMIC**
  - Category 6: **economy and employment**
- **Pillar: PHYSICAL**
  - Category 7: **housing and inclusiveness**
  - Category 8: **public open spaces**
  - Category 9: **mixed land use and compactness**
  - Category 10: **power supply**
  - Category 11: **transportation and mobility**
  - Category 12: **assured water supply**
  - Category 13: **waste water management**
  - Category 14: **solid waste management**
  - Category 15: **reduced pollution**

Incremental 'Transformation':  
What does it look like?



















## What worked

- Awakening of interest in cities (2014 campaign promises)
- Integrated planning promoted
- Convergence between departments promoted
- Pressure to “think smart” promoted greater engagement with city economics, service delivery, sustainability

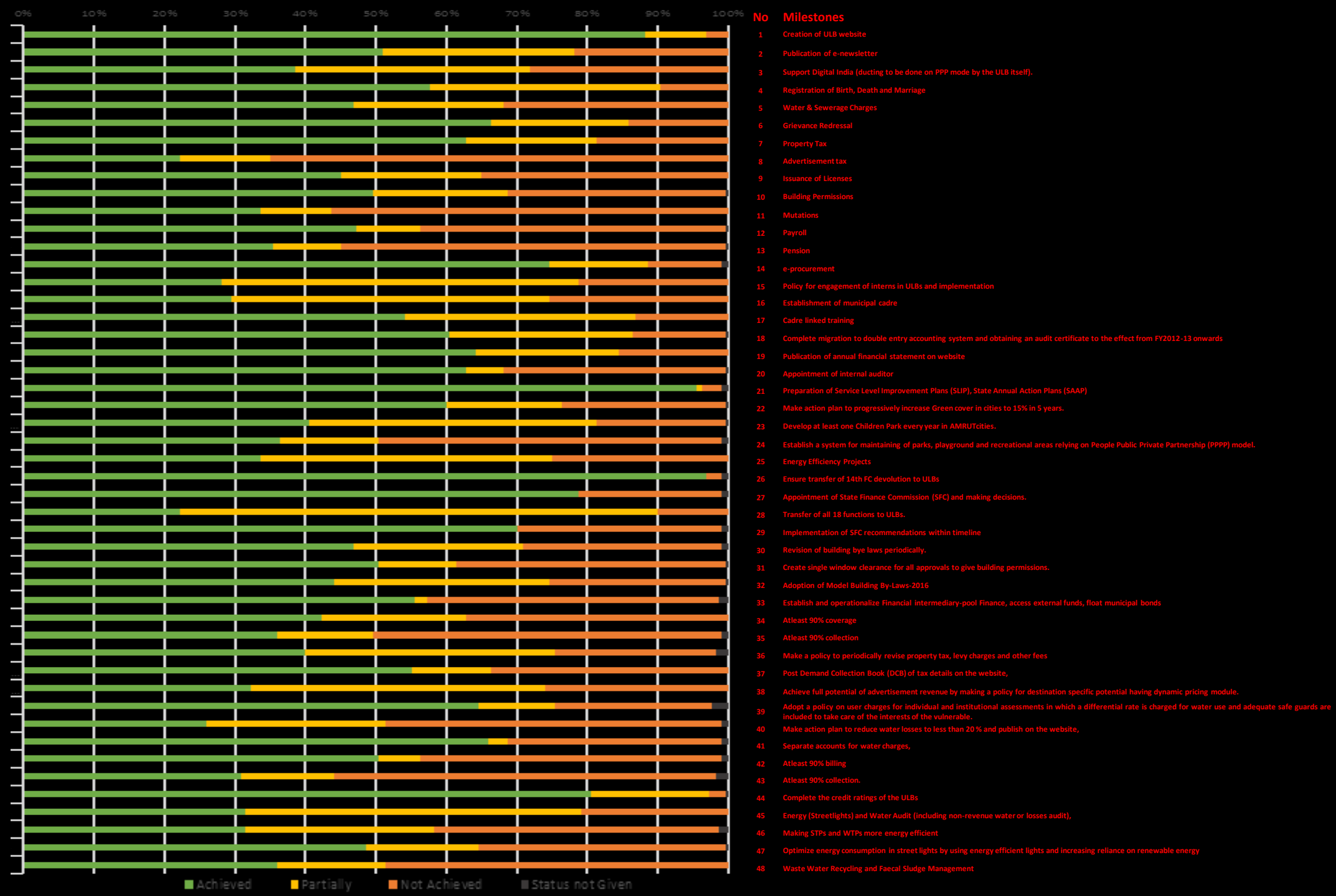
## What didn't work

- Pushback against SPV; private sector CEO
- Scaling and replication strategy (immensely more data needed to strategize for the whole city; than average 7% area of ABD)
- Structural barriers to smart urbanism: devolution; municipality vs development authority; para-state agencies
- Public participation statistically sufficient, substantively missing, not sustained
- ‘Presidential’ style of governance (susceptible to crony capitalism; errors of judgment)
- Social and environmental dimension of cities neglected



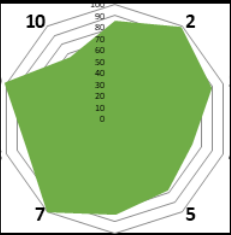
“Smart” is  
a silo?  
Not a  
reform?

Milestone-wise percentage achievement across 220 cities

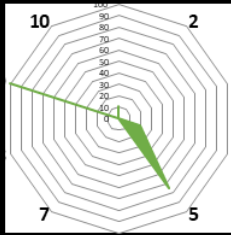


# Different “States” of urbanization

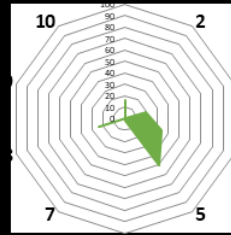
Andhra Pradesh



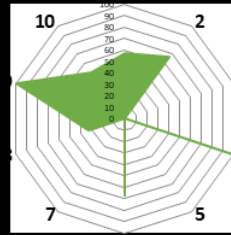
Assam



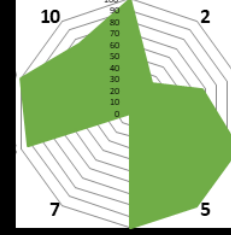
Bihar



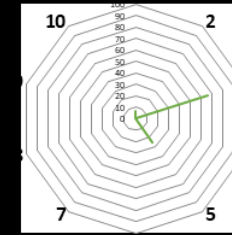
Chandigarh



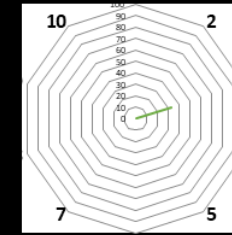
Chhattisgarh



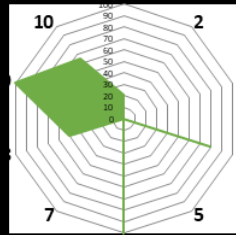
Dadra & NH



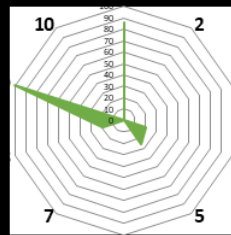
Daman & Diu



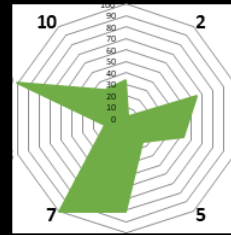
Delhi



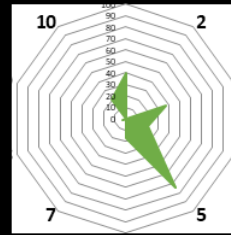
Goa



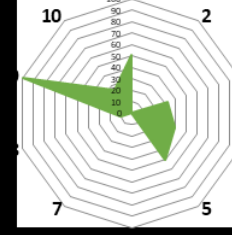
Gujarat



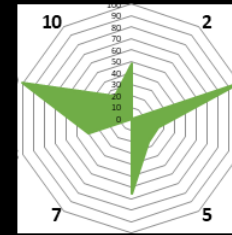
Haryana



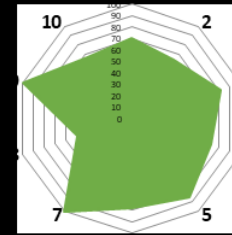
Himachal Pradesh



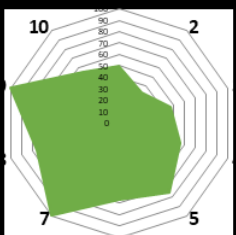
Jharkhand



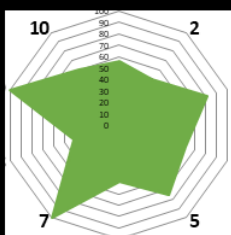
Karnataka



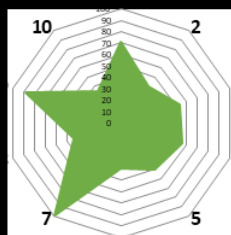
Kerala



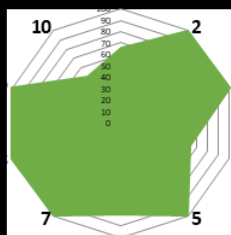
Madhya Pradesh



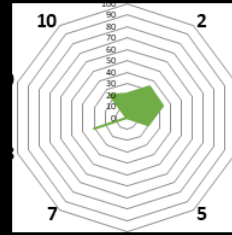
Maharashtra



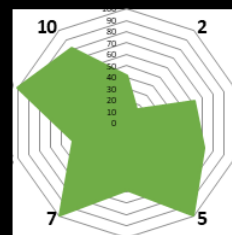
Odisha



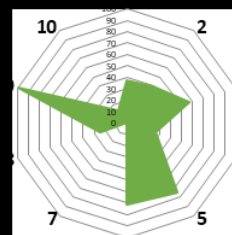
Puducherry



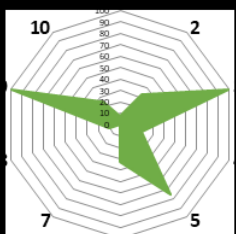
Punjab



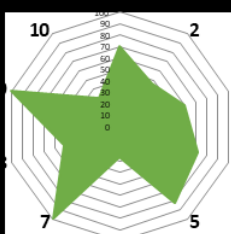
Rajasthan



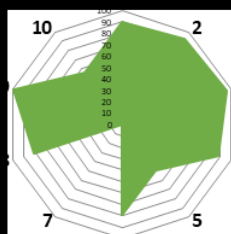
Sikkim



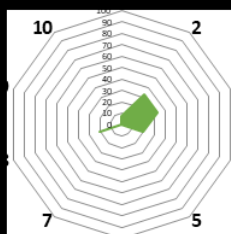
Tamil Nadu



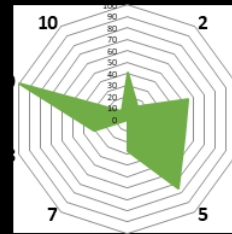
Telangana



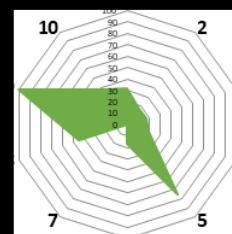
Tripura



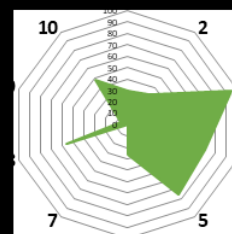
Uttar Pradesh



Uttarakhand



West Bengal



# Can 'smartness' be sustained?

## Surging demands, mounting pressures



Lingering doubts



# Can we imagine what SDG 11 really looks like?

“The cities everyone wants to live in should be clean and safe, possess efficient public services, be supported by a dynamic economy, provide cultural stimulation, and also do their best to heal society’s divisions of race, class and ethnicity. These are not the cities we live in.

Cities fail on all these counts due to government policy, irreparable social ills, and economic forces beyond local control. The city is not its own master. Still, something has gone wrong, radically wrong, in our conception of what a city should be. We need to imagine just what a clean, safe, efficient, dynamic, stimulating, just city would look like concretely—we need those images to confront critically our masters with what they should be doing—and it is exactly this critical examination of the city which is weak.”

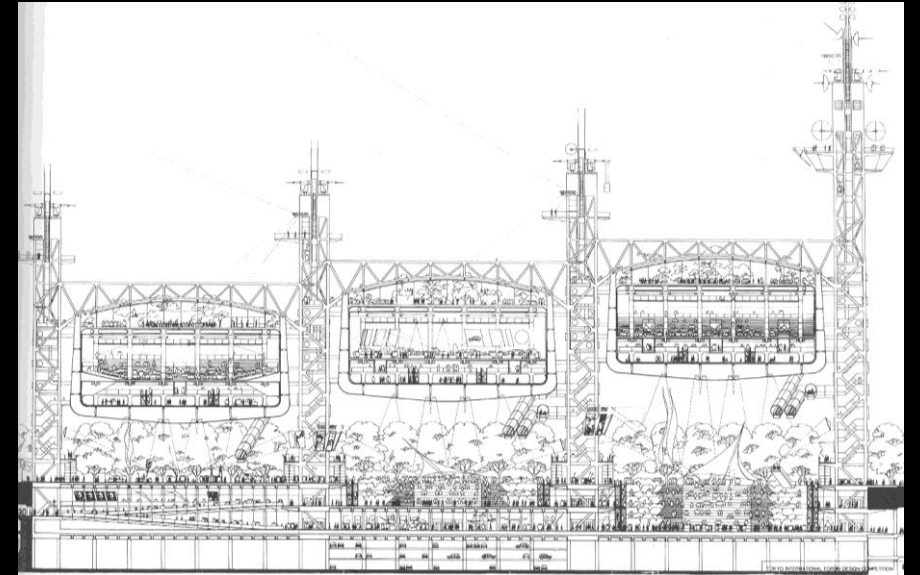
Richard Sennett, ‘The Open City’, November 2006



Mughal era miniature, Krishna's Dwarka,  
Smithsonian Collection



‘The City of the Future’, advertisement for cement,  
IIA Journal, 1946



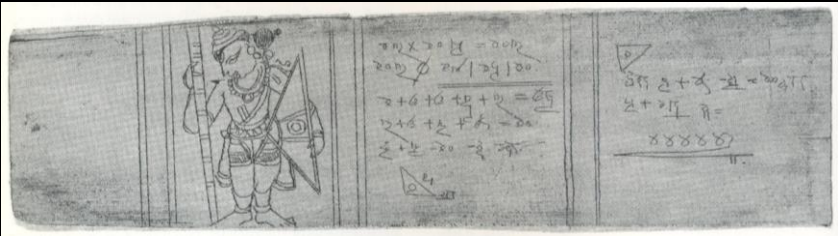
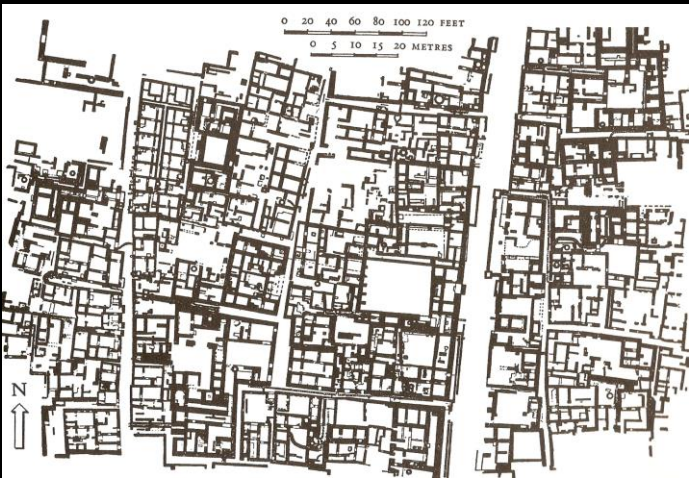
Richard Rogers, Cities for a Sustainable Planet, 1996



# Can history and culture be levers for better cities?

INDIAN SIGN	SUPERIAN SIGN	APPROXIMATE DATE OF USE	PHONETIC VALUE	PICTURE VALUE
		2750	BAR	a kind of shrine
		3000	GI	reed
		3000	GAN	a land measure
		3500	MAL	a dwelling
		3000	GA	—
		2400	GIL	(a doubled form of GI above)
		3000	GIR	a scorpion
			AD	

INDIAN SIGN	SUPERIAN SIGN	APPROXIMATE DATE OF USE	PHONETIC VALUE	PICTURE VALUE
		2800	KNA	Fish
		2700	SAR	360
		2900	GAL	great
		3000	SAG	heart in
		2800	BAD	beach
		2400	KU	to
		3000	SU	land
		2800	US	member
		2800	E	house
				plot of land



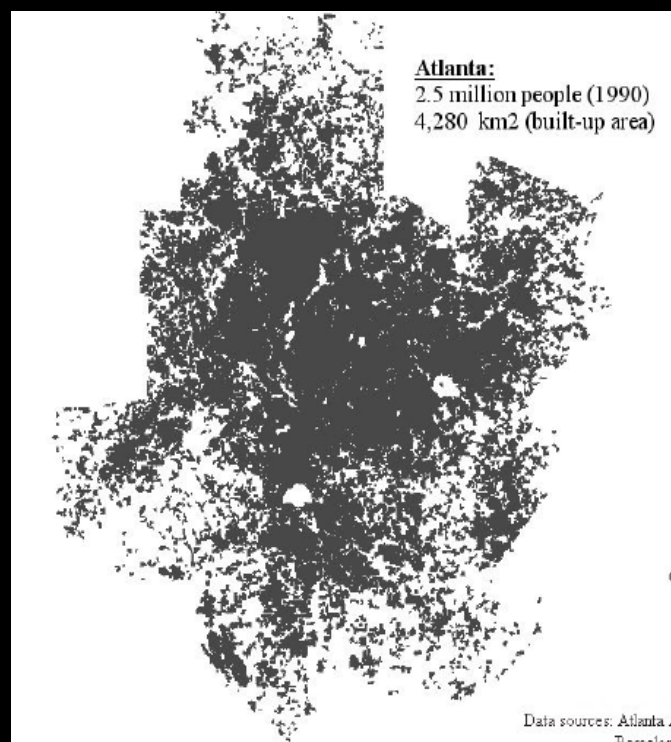


... or must we settle for endless sameness?



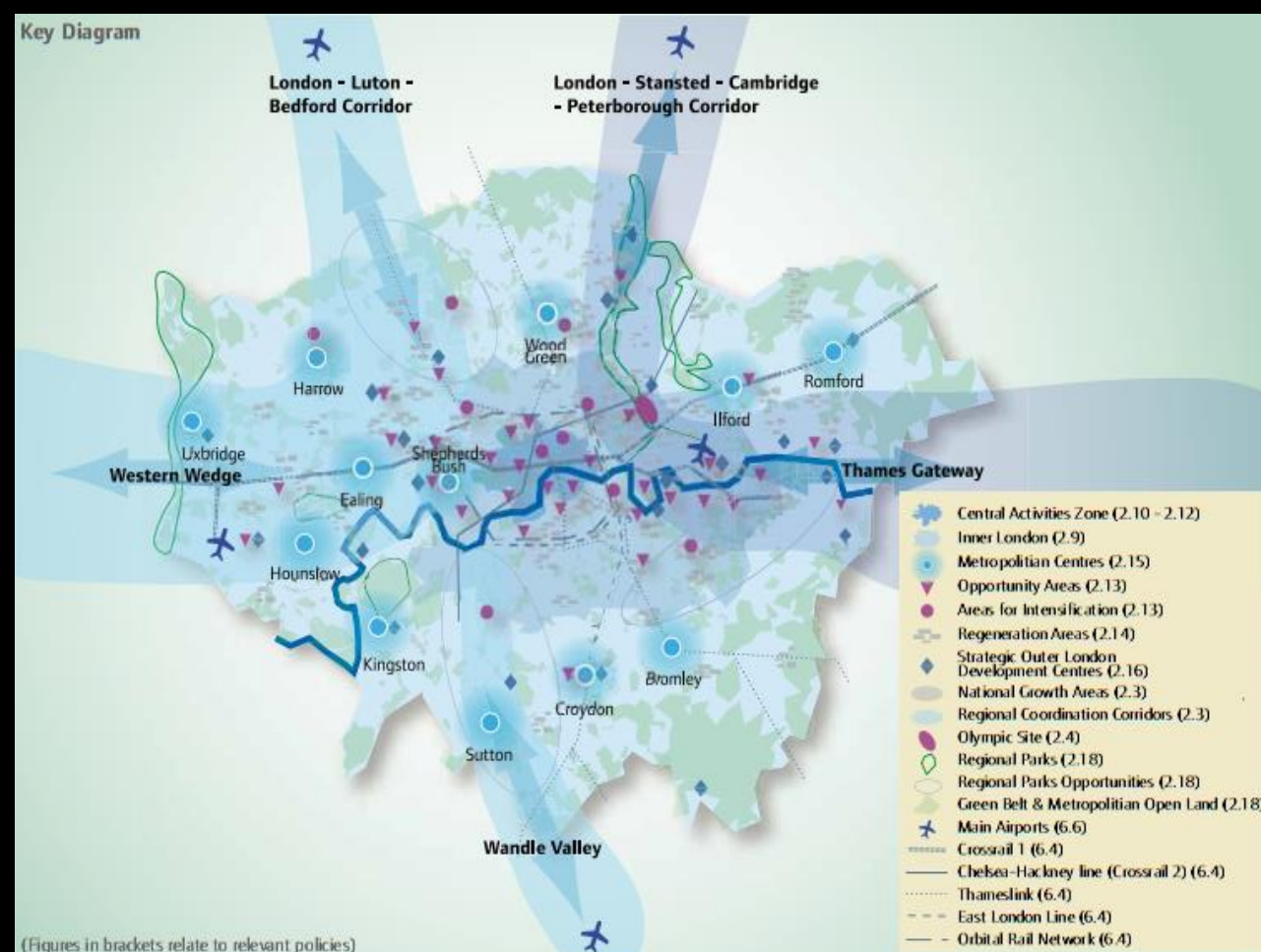


# Does choosing the right models make a difference?



60% of the population of Barcelona is within 600m of a subway line (99kms of subway lines and 136 metro stations)

To provide the same accessibility as Barcelona, Atlanta would have to build 3,400 km of metro line (compared to the current 74 km) and build 2,800 new railway stations





# Can we shed the tropes of the past?

Old Delhi

New Delhi



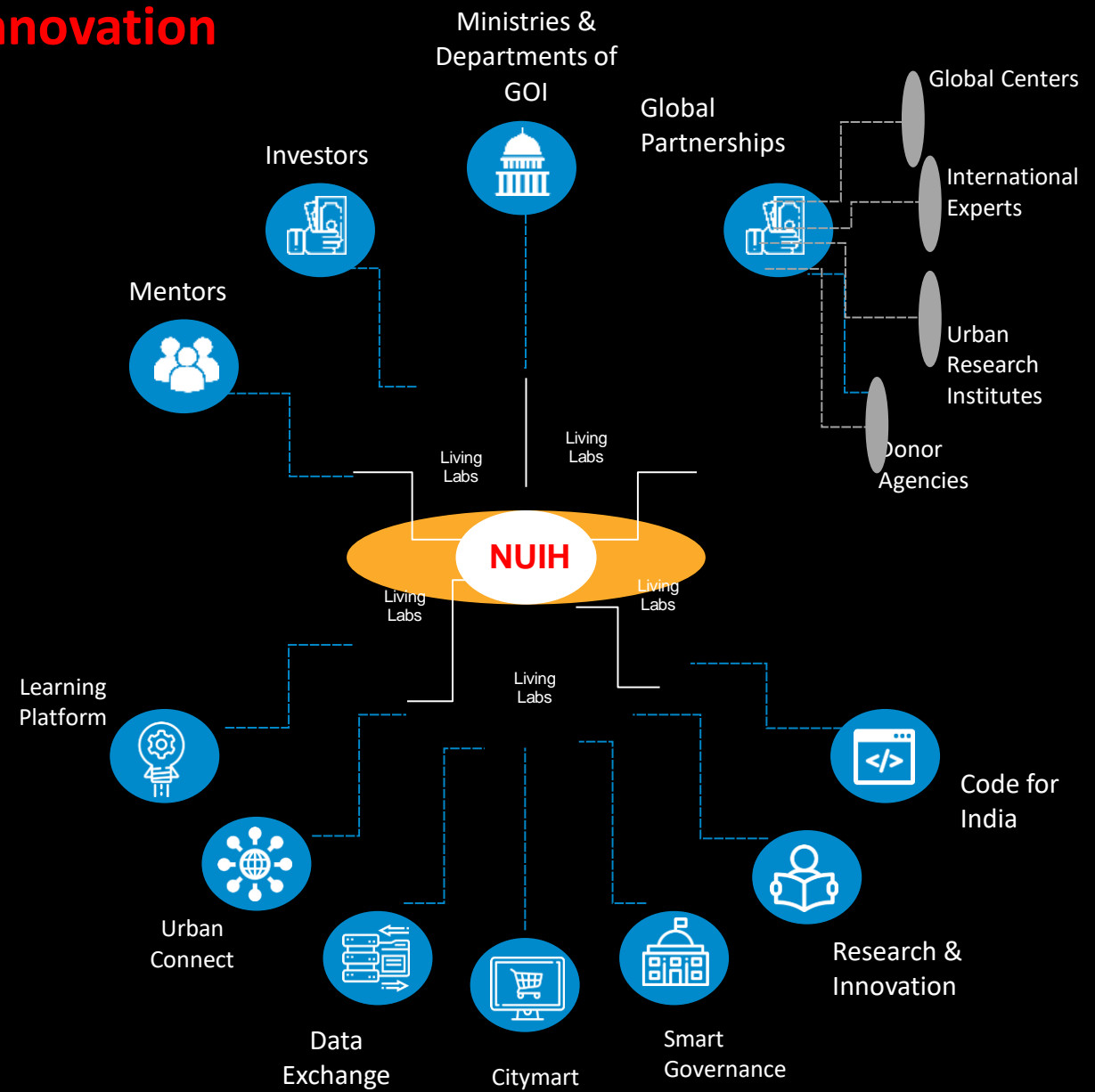
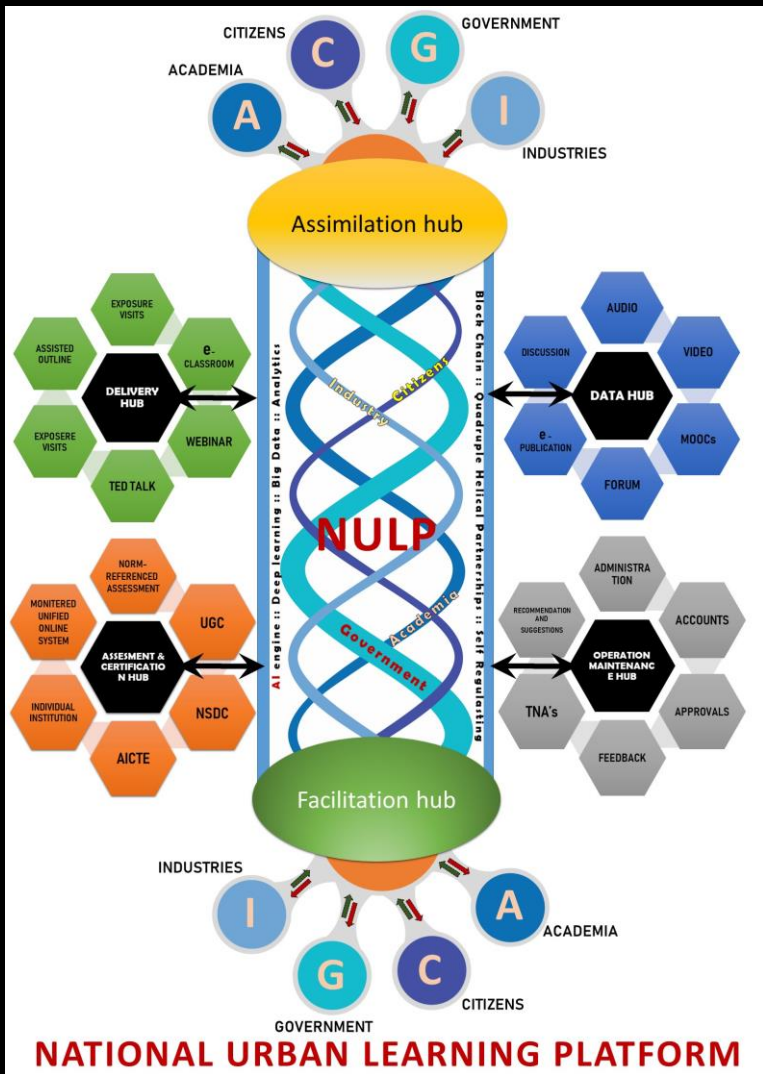
Old Delhi

New Delhi

From Sten Nilsen, 'New Capitals of India, Pakistan and Bangladesh', Curzon Press, 1982

# The National Urban Innovation Hub: consolidating existing resources, orchestrating innovation

- Foundational Institution and central hub
- Hubs-and-Spokes Network
- Single window for urban capacity building
- Driving convergence of Ministries and departments of the GoI
- Smart Cities become 100 Living Labs to incubate and refine innovations in real world conditions





# Can the political economy invest in people?

- Sustain integrated planning and holistic investments: **CONVERGENCE**
- Promote e-Governance: **TRANSPARENCY**
- Promote informal sector and SMEs: **INCLUSION & DIVERSITY**
- Decentralize planning & management: **DEVOLUTION**
- Measure resources and consumption: **DECOUPLING**
- Enhance public participation: **TRUST**
- Promote 'Triple Helix' partnerships: **GOV. + IND. & BUS. + INST.**
- Support Entrepreneurship and Innovation: **INVEST IN CHILDREN, YOUTH, ELDERS**



How deep does  
disruption need to be?

What is the appropriate  
scale of transformation?

Thanks for listening