Digitally e-nabled cities in India: Unlocking $550 bn+ opportunity

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Problem: The size of the issue in India

Solutions: Making a city "smart" offers new hope

Examples: Simple, innovative solutions already in use

Enablers: What is needed for sustainable provision

Context

- By 2030, India's cities will have 600 Mn people. Currently 31% of population urbanized, contributing 63% to GDP; but 40% by 2030, contributing 75% of GDP.

- If BAU, large proportion may still have no access to water, electricity, health care, and education.

- Globally, city governments are focusing on development of Smart city technologies to tackle urban challenges.

- India's MoUD: roadmap/ X-Prize to boost implementation of 100 Smart City projects + financing model for these projects
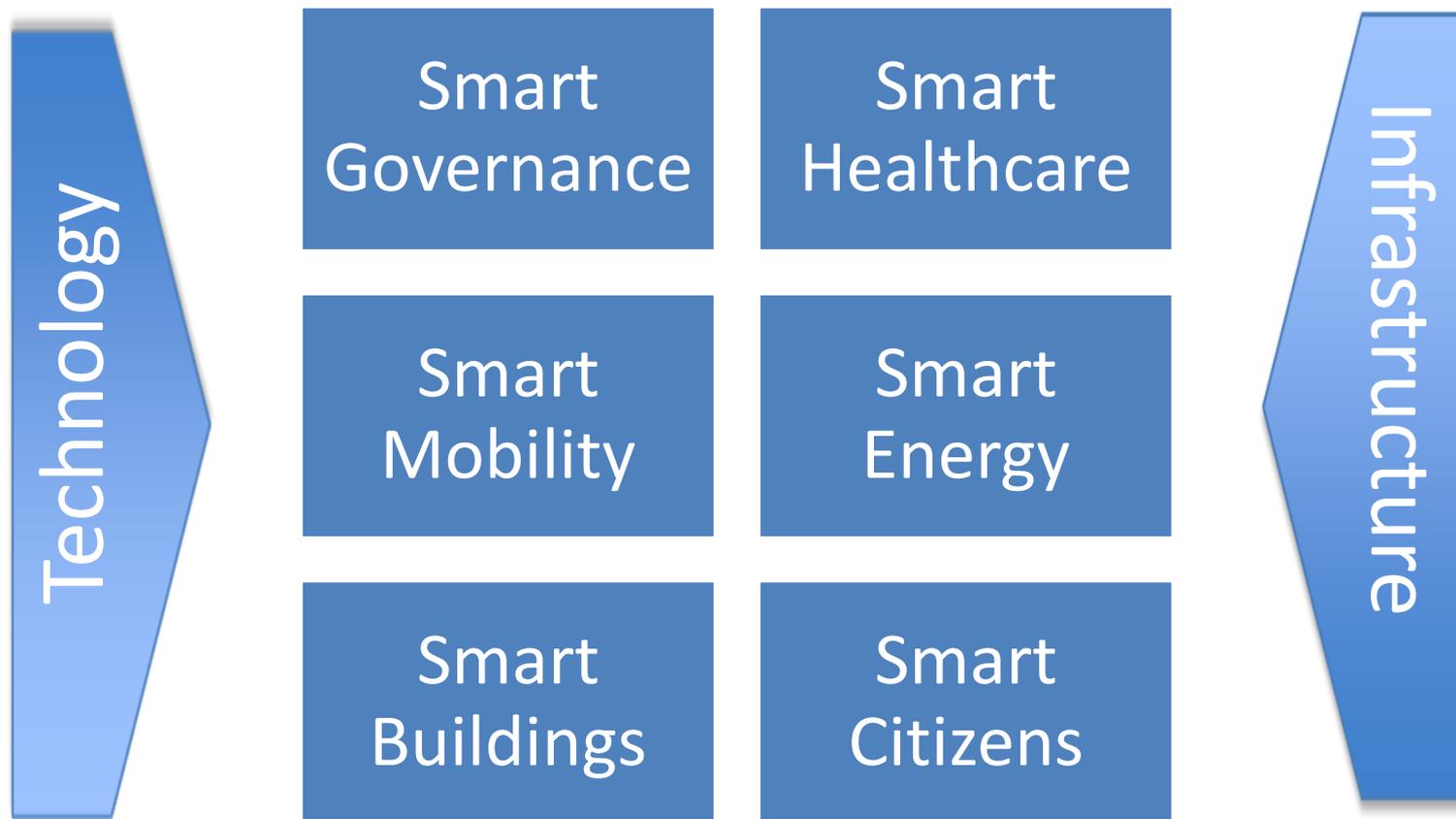
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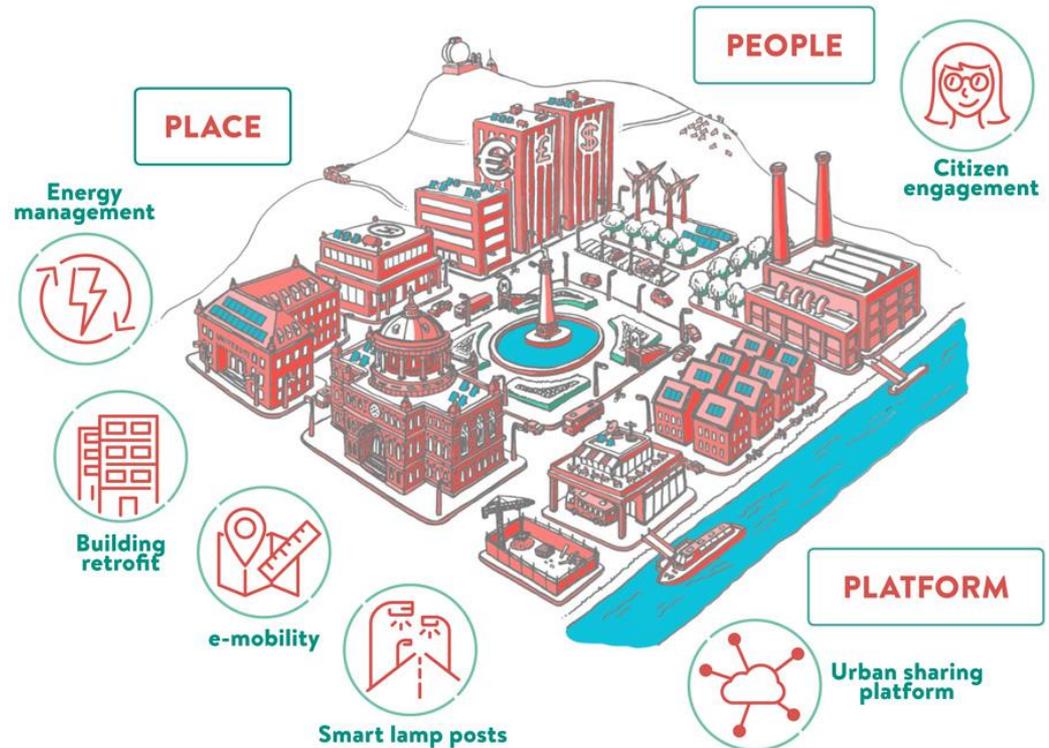**Examples:** Simple, innovative solutions already in use

Enablers: What is needed for sustainable provision

Getting Smart Can Save Energy, Water Usage & Reduce Maintenance costs of providing Basic Services

Technology

Infrastructure

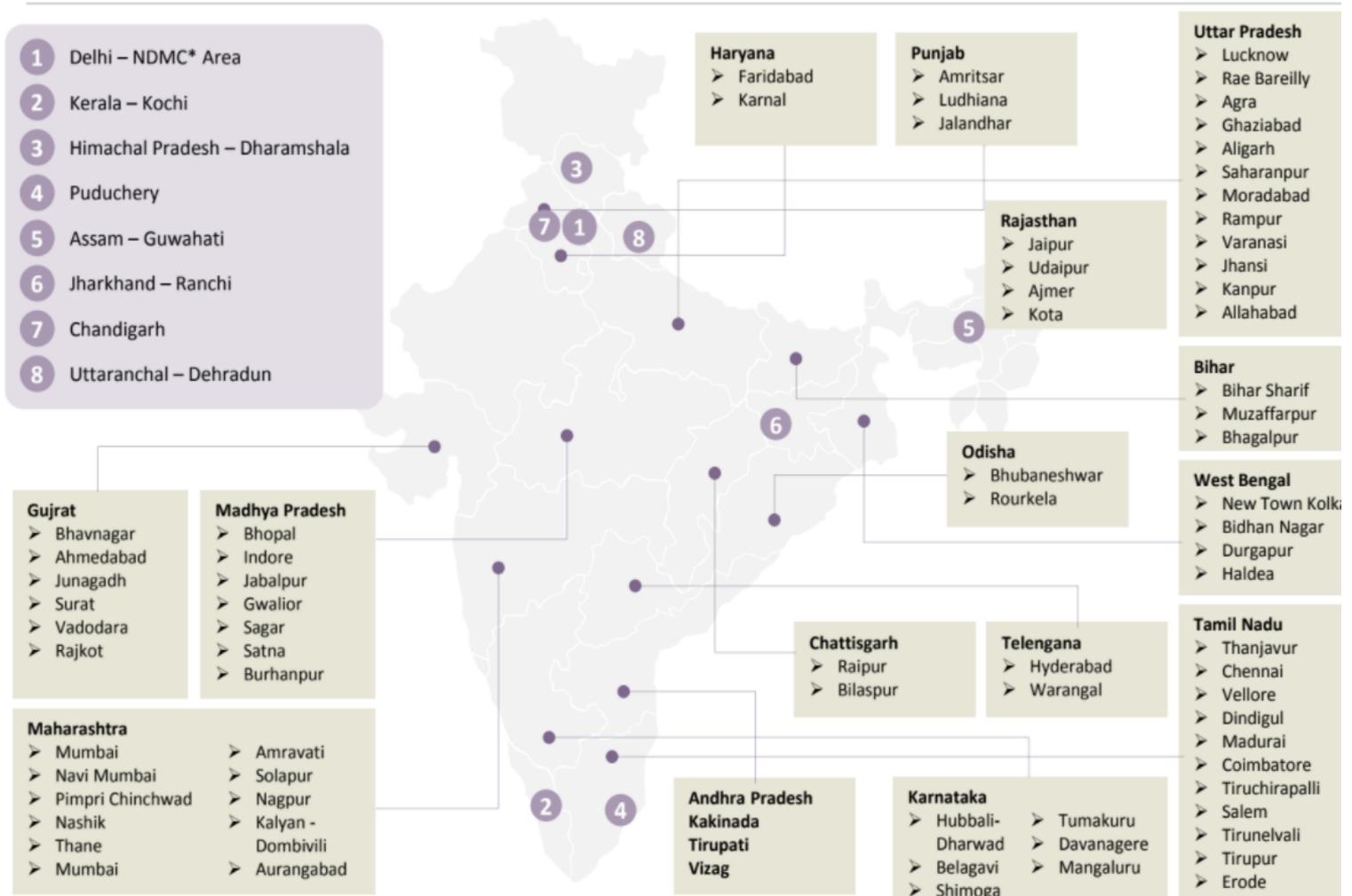| Smart Governance	Smart Healthcare
Smart Mobility	Smart Energy
Smart Buildings	Smart Citizens

So the time is ripe for Smart Cities

- Connected
- Secure
- Sustainable
- Innovative
- Inclusive

Meticulously planned city that uses IT as enabler into infrastructure and services, to meet citizen demands efficiently and reliably

India's Smart Cities

1. Delhi – NDMC* Area
2. Kerala – Kochi
3. Himachal Pradesh – Dharamshala
4. Puduchery
5. Assam – Guwahati
6. Jharkhand – Ranchi
7. Chandigarh
8. Uttaranchal – Dehradun

Haryana
- Faridabad
- Karnal

Punjab
- Amritsar
- Ludhiana
- Jalandhar

Uttar Pradesh
- Lucknow
- Rae Bareilly
- Agra
- Ghaziabad
- Aligarh
- Saharanpur
- Moradabad
- Rampur
- Varanasi
- Jhansi
- Kanpur
- Allahabad

Rajasthan
- Jaipur
- Udaipur
- Ajmer
- Kota

Bihar
- Bihar Sharif
- Muzaffarpur
- Bhagalpur

Odisha
- Bhubaneshwar
- Rourkela

West Bengal
- New Town Kolka
- Bidhan Nagar
- Durgapur
- Haldea

Gujrat
- Bhavnagar
- Ahmedabad
- Junagadh
- Surat
- Vadodara
- Rajkot

Madhya Pradesh
- Bhopal
- Indore
- Jabalpur
- Gwalior
- Sagar
- Satna
- Burhanpur

Chattisgarh
- Raipur
- Bilaspur

Telengana
- Hyderabad
- Warangal

Tamil Nadu
- Thanjavur
- Chennai
- Vellore
- Dindigul
- Madurai
- Coimbatore
- Tiruchirapalli
- Salem
- Tirunelvali
- Tirupur
- Erode

Maharashtra
- Mumbai
- Navi Mumbai
- Pimpri Chinchwad
- Nashik
- Thane
- Mumbai
- Amravati
- Solapur
- Nagpur
- Kalyan - Dombivili
- Aurangabad

Andhra Pradesh
Kakinada
Tirupati
Vizag

Karnataka
- Hubbali-Dharwad
- Belagavi
- Shimoga
- Tumakuru
- Davanagere
- Mangaluru

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① Circular Economy- Waste to Resource

Smart Solutions can preserve value of waste at source, while connecting connects communities, businesses, waste collectors, energy producers, and recyclers through transparent transactions in closed loop.

Case study: CITIZENGAGE

Smart technology platform can combine mobility, IoT, algorithms & analytics --- to measure, track, monitor, and control the entire cycle of waste to resource conversions.

② Solar + Battery

Vehicle –to-home system V2H- can charge a house with battery of an electric car. Smart Grid solutions increase efficiency, reliability while reducing cost.

Case study: DENSO/ NISSAN

Fully/ partially charged battery pack in electric car providing power to a home

Deployed at best time-of-use-car's storage capacity used for more than powering its wheels.

③ Connected Vehicle Platform

Turning data about vehicles and their use into intelligence that improves operations and safety while reducing costs and risk-data analytics.

Case study: AZUGA

- *For Fleet Operators*: Tracking & Management
- *For Government* – Tracking Tolls, Emissions, Taxes
- *For Insurers*- Risk premium for drivers
- *For Auto Industry suppliers*- Data analytics

A Framework –Urban Mobility in a Smart City
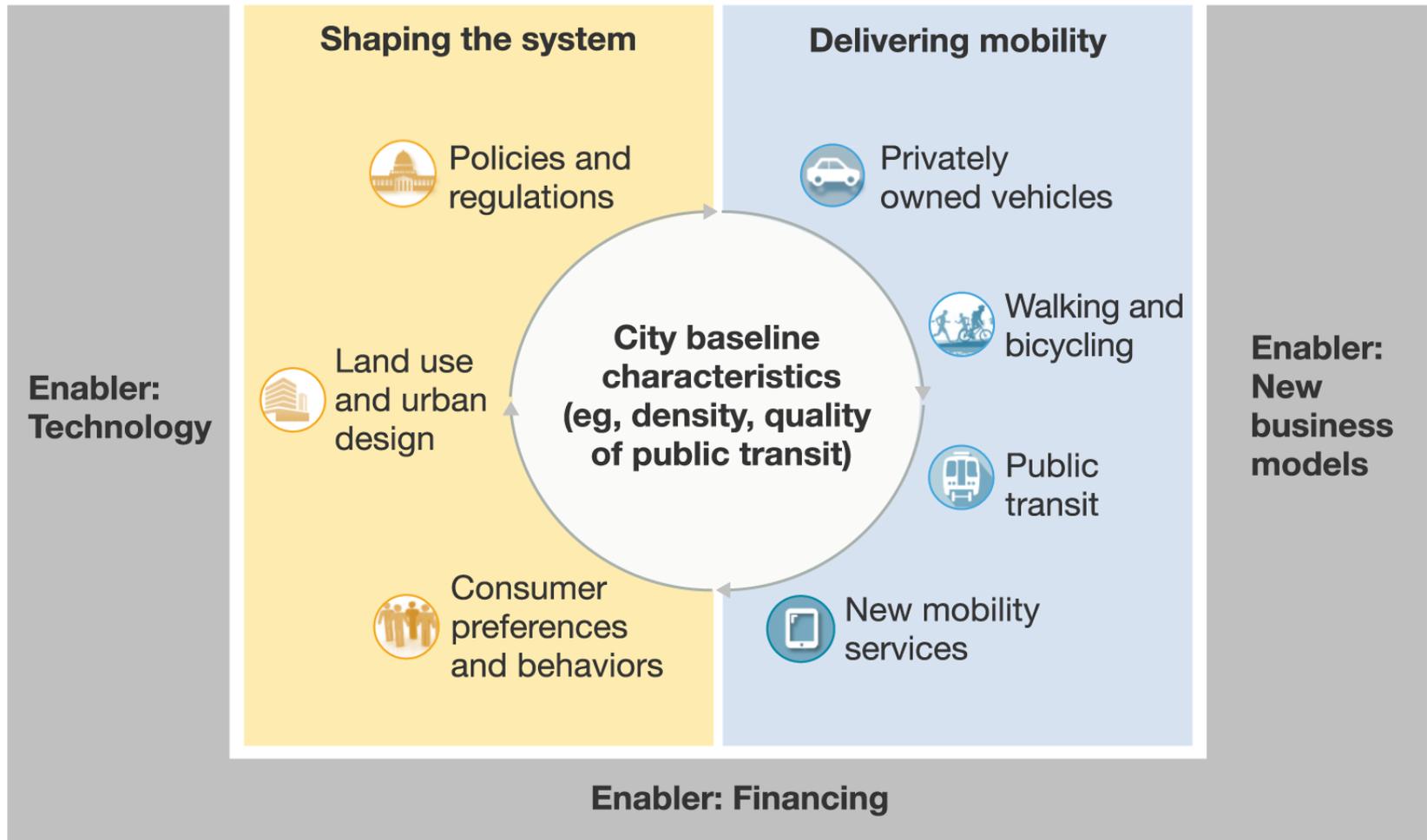
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Challenges

- Low Network readiness, Lack of basic infrastructure & low level of skills
- Internet Security policy and interoperability framework and standards
- Need large, long term investment in manpower, tech upgrades, digital literacy
- Financing
- Tradeoff Security v. Privacy - Data

Summary: Need the full ecosystem to participate to unlock the capability of digital in smart cities

Smart infrastructure backbone	• Technology and Infrastructure- Efficient, High Capacity , Sustainable , Resilient, High Speed Networks for Electricity, Transport, Water and Waste Management, IT and mobile telecom infrastructure
Regulation & Standards	• Risk proportionate regulation & oversight • Interoperable networks , Open architecture and room to innovate • Facilitate trust, transparency, safety and privacy for consumers
Sector readiness	• Industrial planning and target tenants esp. for greenfield • Long term infrastructure planning, investment project prioritization • affordable tariff, Standards, Lifecycle management
New business models and partnerships	• Scalable acquisition of partners • Compelling value propositions focused on lowering barriers / meeting needs • Government sponsored usage to stimulate demand • Privacy v. safety & Security

Appendix

Smart Cities In India- Framework

- Long term infrastructure Plan, Infrastructure Fund
- SPV- Infrastructure – procurement and commercial lead for all major Public Infra projects in the city
- Prioritization of investment projects and total cost (transparent criteria ex: resulting economic growth, sustainability, resilience and community benefits)
- Value for money and affordable Tariff through optimal financing structures
- Institutional structures; Streamlined procurement and accountability checks
- Adaptable and resilient infrastructure standards
- Asset lifecycle management