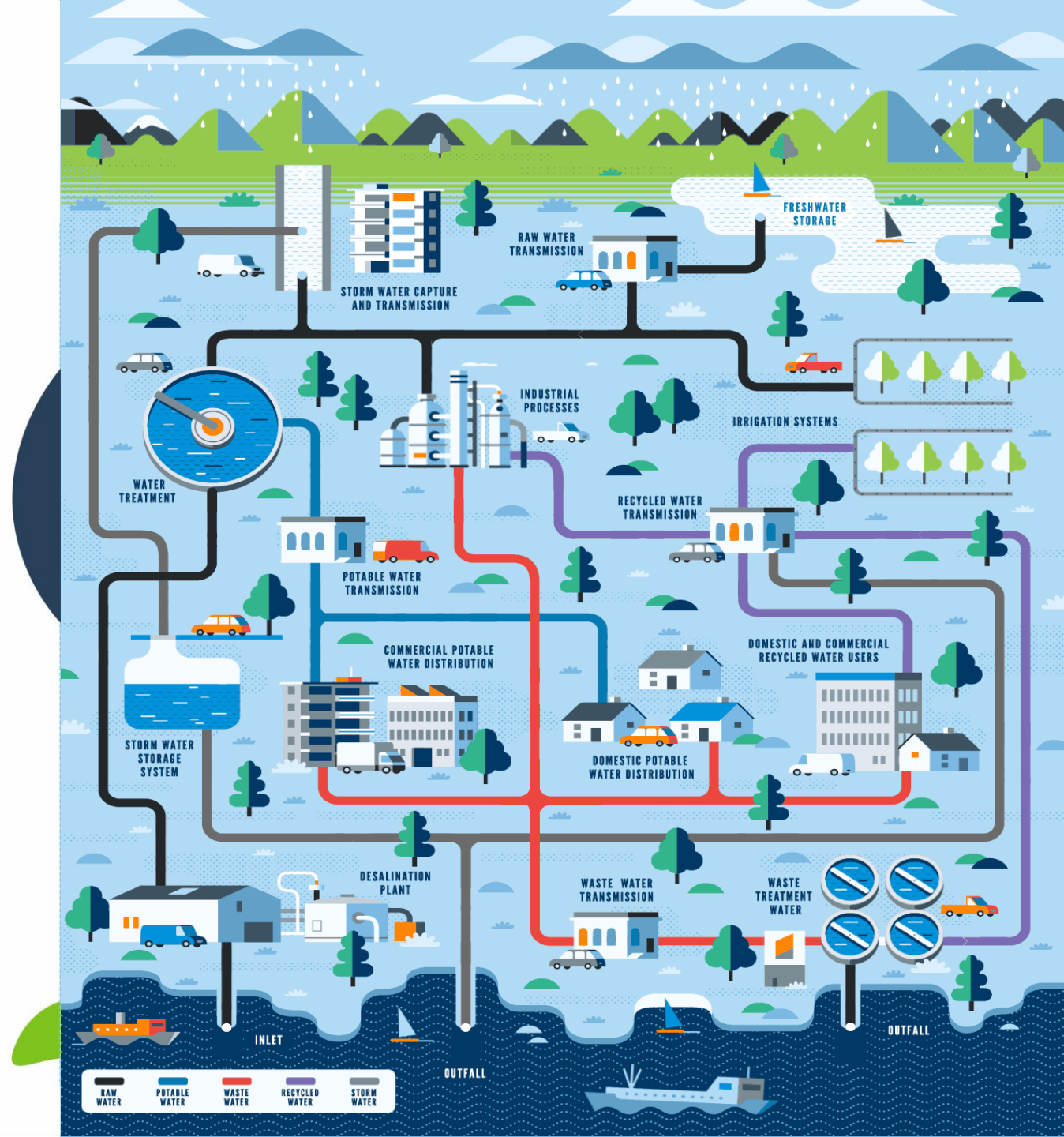# Two Hypotheses

Innovation does not occur by happenstance – it requires nurturing

... & ...

Water systems are no different to many others if one seeks to stimulate innovation

RESCCUE
RESILIENCE TO COPE WITH CLIMATE CHANGE IN URBAN AREAS.

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The challenges of innovation rest in the systemic nature of cities

- Water systems are a city 'lifeline'
- Deeply interdependent with other systems
- Digitisation offers efficiency and innovation potential
- So too, new sustainable equipment & technologies

→ HOWEVER, INNOVATION IS CONSTRAINED
   WHY? ... & HOW TO RESOLVE?

1 City Responsibilities

- Built Environment
- Mobility & Logistics
- Water & Waste Water
- Energy Management
- Telecommunications
- Waste Management
- Health & wellbeing
- Public Safety
- Education & Skills
- Economic Development
- Sports, Culture & Tourism
- Contemporary Emerging Topics

2 General Enablers

- Leadership & Governance
- Policy Regulation & Legislation
- Societal Insight, & Particiiptn
- City-Wide Planning
- Sustainability & Resilience
- Asset Stewardship
- Business Models & Financing
- Performance Management

3 Digital Transformation

- Digital Core Common Services
- Connectivity
- Interoperability & Standards
- Data Mgmt. & Analytics
- Security & Privacy
- Urban Data Platforms
- Disruptive Technologies

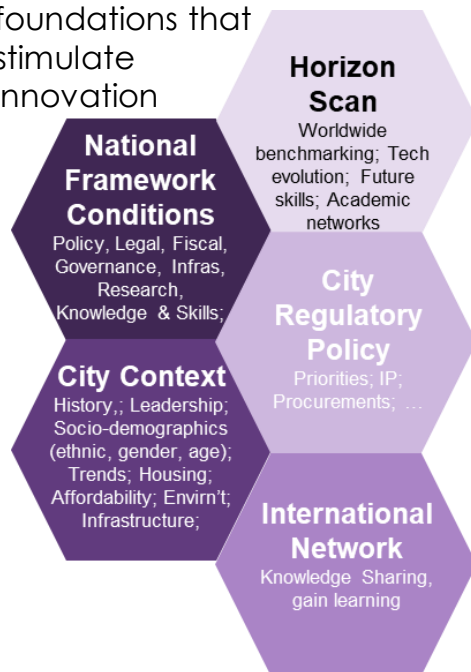Cities as complex, dynamic, interdependent, systemic organisms, with unique anatomies, and common DNA

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Innovation example: Sewers for COVID software: https://www.youtube.com/watch?v=9MmGNuOE-wU

A holistic 4-pillar framework

1. Framework Conditions

The contextual foundations that stimulate innovation

National Framework Conditions
Policy, Legal, Fiscal, Governance, Infras, Research, Knowledge & Skills;

Horizon Scan
Worldwide benchmarking; Tech evolution; Future skills; Academic networks

City Regulatory Policy
Priorities; IP; Procurements; ...

City Context
History,; Leadership; Socio-demographics (ethnic, gender, age); Trends; Housing; Affordability; Envirn't; Infrastructure;

International Network
Knowledge Sharing, gain learning

2. Network Enablement

Collaboration between stakeholders to enable novel ideas and solutions

Digital Enablement
Infrastructure; Connectivity; eServices; Data Policy & Management

Proposition & Service Management
Promise; Channels;

Business Engagement
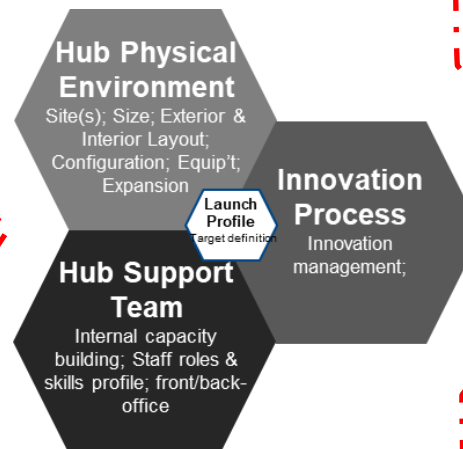BigCo/SME; Proximity; Tools; Intelligence; Events; Competitions; Participation; Co-financing;...

Community Engagement
Tools; Insight; Participation; Data Privacy

Academic Engagement
Collaborative research; mentoring coaching; evaluation

3. Innovation in Action

Effectively combining a portfolio of physical hubs, and human capital

Hub Physical Environment
Site(s); Size; Exterior & Interior Layout; Configuration; Equip't; Expansion

Launch Profile target definition

Innovation Process
Innovation management;

Hub Support Team
Internal capacity building; Staff roles & skills profile; front/back-office

4. Sustaining Value

The basis to ensure value endures

Performance Monitoring
Financial; Non-financial; benchmarks; learning

Governance Model
Vision; Goals; Roles; Investment planning; Risk Propensity; Capacity Planning

Financing & Funding
Sources; Investor Access; Competitions;

Business Model
Ownership; Life-cycle structuring; Operating Model; SPV;...
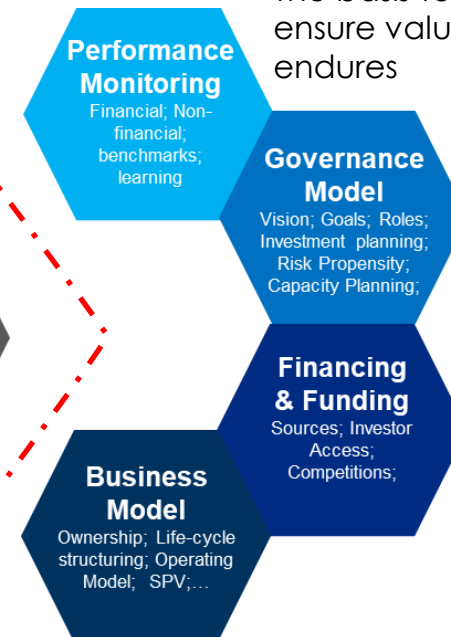
Sources:
1. Urban Innovation White Paper
2. Article on Urban Innovation Monitoring

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A holistic 4-pillar framework - that can be assessed city-wide

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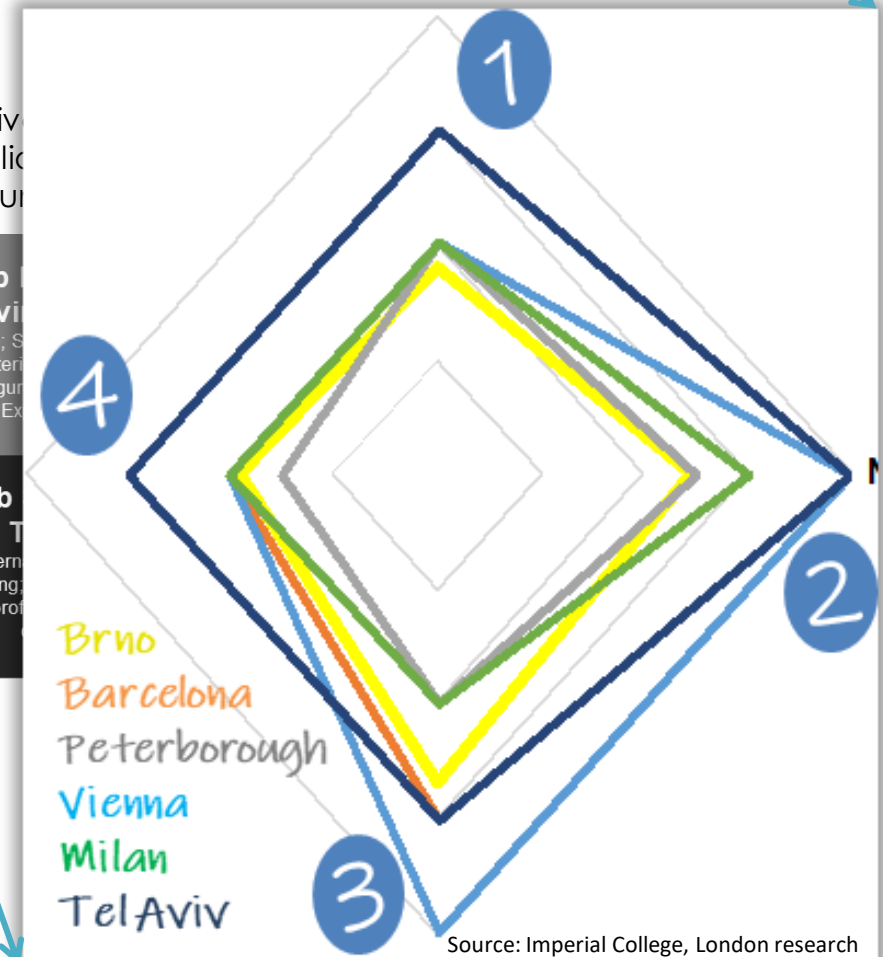
3. Innovation in Action

Effectiv... portfoli... and hu...

Hub ... Envi...
Site(s); S... Interi... Configur... Ex...

Hub ... T...
Intern... building; skills prof...

4. Sustaining Value

Brno
Barcelona
Peterborough
Vienna
Milan
Tel Aviv

Source: Imperial College, London research

7 steps to more purposeful & productive Urban Innovation

1. Get the topic on the agenda: Discuss amongst city leaders why innovation matters, and only move once that is recognised.
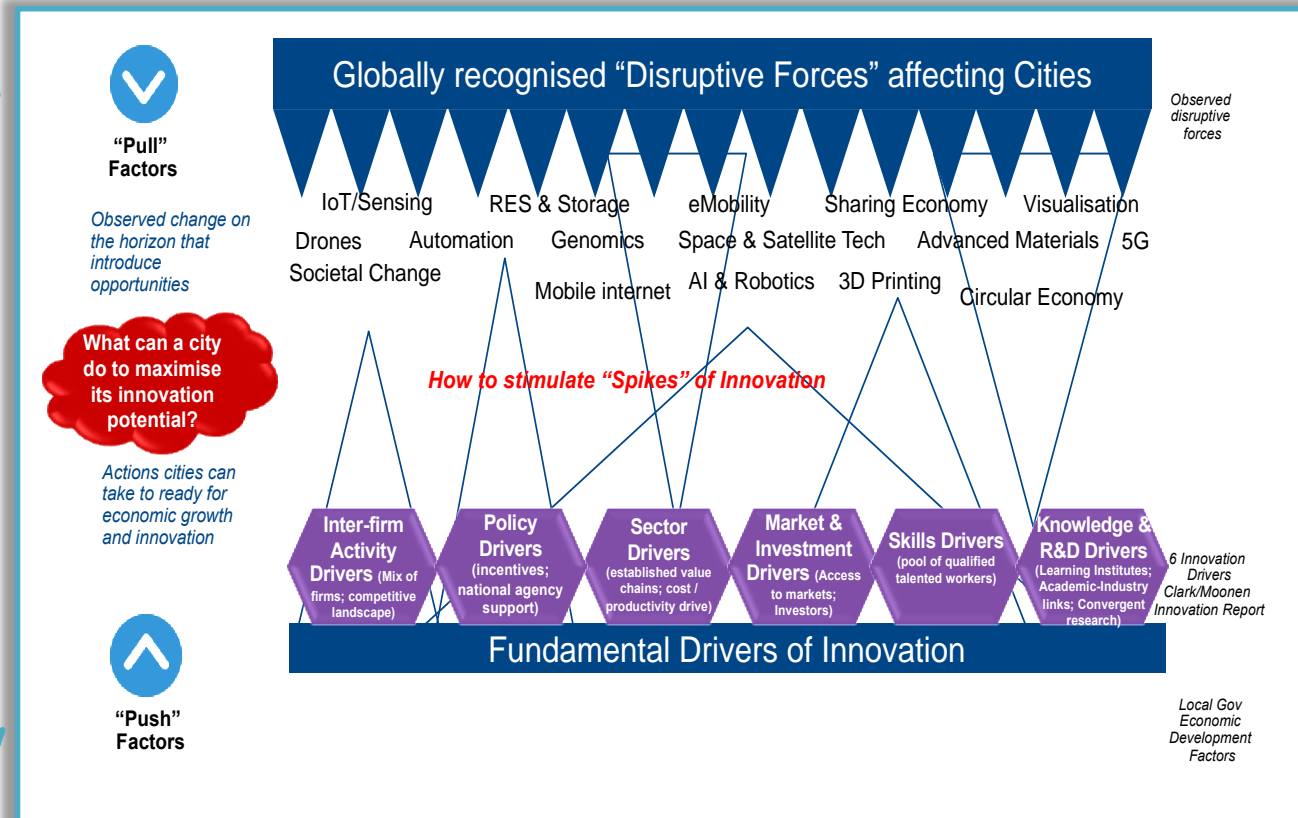
2. Assess the innovation state-of-play for the city: Perform an honest appraisal of the state-of-play against the innovation blueprint through a pragmatic analysis and/or metrics; and identifying key areas for improvement.

3. Perform a 'Horizon Scan' to inform the thinking: Look to the new opportunities that emerge on the horizon, and connect these to more proactive plans for the present.

4. Make the purpose and goals very clear!: Get a common meaning for the term amongst stakeholders; identify where the city legitimately and competently can lead through innovation; and work with others too.

5. Determine the focus and priorities: Address the city systemically, and pragmatically. Stimulate dialogue around a pragmatic city model to assess potential priorities and explore interdependencies.

6. Set targets and select indicators: Build collective ownership of audacious goals, and identify indicators to monitor.

"Pull" Factors

Observed change on the horizon that introduce opportunities

What can a city do to maximise its innovation potential?

Actions cities can take to ready for economic growth and innovation

"Push" Factors

Globally recognised "Disruptive Forces" affecting Cities

Observed disruptive forces

IoT/Sensing · RES & Storage · eMobility · Sharing Economy · Visualisation · Drones · Automation · Genomics · Space & Satellite Tech · Advanced Materials · 5G · Societal Change · Mobile internet · AI & Robotics · 3D Printing · Circular Economy

How to stimulate "Spikes" of Innovation

Inter-firm Activity Drivers (Mix of firms; competitive landscape) · Policy Drivers (incentives; national agency support) · Sector Drivers (established value chains; cost / productivity drive) · Market & Investment Drivers (Access to markets; Investors) · Skills Drivers (pool of qualified talented workers) · Knowledge & R&D Drivers (Learning Institutes; Academic-Industry links; Convergent research)

Fundamental Drivers of Innovation

6 Innovation Drivers Clark/Moonen Innovation Report

Local Gov Economic Development Factors

7. Consider appointing a Chief Innovation Officer: with clear accountability & dedicated resource for pan-city innovation; to put focus on direction; streamline operations, & develop the right portfolio.

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6

RESCCUE experience reinforces an inter-dependent approach

Thank You!

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