Path to more targeted investment in smart cities and communities

Insights from the EIP-SCC network

17 January 2019 | Dr Marcel van Oosterhout (Erasmus University Rotterdam), Graham Colclough (Urban DNA)
EIP-SCC Lighthouses present a worldwide potential force for betterment

An ambitious set of demonstrator programmes seeking to speed and scale the European market

~100 Cities involved to demonstrate smart cities solutions

€500 million EU stimulus investment

>€500 million Cities co-investment

14 Programmes

1 common ‘smart’ agenda

4 agreed initial priority solutions for collaboration:

Urban Data Platforms; Social Housing; eBikes; Smart Lampposts

Clear opportunities to exploit and deliver synergies in EU & beyond – however important steps to take to make that so
The market focus is shifting towards stimulating investment

Investors are diverse in type, however nervous, seeing cities as “too small, too slow, and too risky”

“Towards a Joint Investment Programme for European Smart Cities” white paper – seeking to stimulate action!

A. EC-LED ACTIONS
1. Maximise the impact of the SCC01 Lighthouses
2. Identify and drive ‘quick wins’ through to visible market value
3. Use Structural Funds as a stimulus to attract further scale investment
4. Deliver greater alignment of EC Financing sources
5. Incentivise demand aggregation
6. Mandate Open Standards as a pre-requisite in EC Calls
7. Stimulate and condition industries
8. Co-create an Open Framework for Urban Infrastructure Expenditure Forecast
9. Introduce EIP-SCC Initiative Champions
10. Support Seed Financing of Select EIP-SCC Initiatives

B. OTHER PUBLIC / MEMBER STATE-LED ACTIONS
11. Embrace National City Associations
12. Focus on capabilities for business models & finance
13. Use competitions as a stimulus for the market
14. Undertake regular ‘horizon scanning’

C. INVESTOR-LED ACTIONS
15. Collaborate on innovative investment instruments
16. Build investor technical capacity
17. Create Smart City Financing Instruments

D. MARKET-LED ACTIONS
18. Engage industry associations and professional networks
19. Deliver sustained application of smart city “Protocols”
20. Develop trusted guidance and standards
21. Exploit industry-funded challenge grants

- Deep collaboration required
- Clear role for SCC01s
- Open standards & guides
- New Financial Instruments
- Blending of funds

The Lighthouse community has the opportunity to exploit the SCC01 cities’ commitments; deliver scale; embrace open standards; evidence improvements; and build investor confidence
Helping cities make faster decisions is critical. The smart cities market has some recognized challenges:

**Slow decisions**
- On average a public sector organisation takes ~4.5yrs to move from idea to action
- Silo complexities inhibit collaboration
- Individual approaches engender caution
- Public value is just too complex!

**Modest scale**
- A general market of bespoke city-specific solutions
- A penchant for pilots
- ~300 SCC01s small-scale, city-specific solution demonstrators
- Different approaches and methods in SCC01s make collaboration hard

**Fragmented Content**
- SCC01s in particular will deliver >500 deliverables in general about ~20 similar solutions – how to make sense of all that?
- Fellow cities claim these documents are not helpful to stimulate action
- Fragmented, and questionable quality, inventory of guidance out in the market – how to build trust?

There is a gap between our scale ambition and the current market & SCC01 programme realities. What can be done to speed the process?
Where to start?
The portfolio of Smart City ‘Lighthouse’ Programmes point us towards a set of use cases and solutions to tackle first.
Let’s focus on Urban Data Platforms (UDPs) in the context of smart cities.
1. More cities (compared with EIP 2015 survey), have adopted (vision to develop) an UDP, but it is still early days

2. Most of UDPs are still under development, some use cases operational

3. Most UDPs are focused on use cases to make city more efficient (linked to EU SCC project objectives)

4. Few examples yet of commercial business models enabled by the UDP

UDP implementation barriers & risk importance (per development phase)

- Change Management
- Risk Management
- Investment solutions
- Procurement legislation
- Privacy legislation
- Lack of business cases
- Contractual complexities
- Technical standards
- Technology defects
- Political issues
- Skills
- Lack of Trust
- Cross silo / org. Collaboration
- Cultural and Social issues

1. Exploring/Planning
   - Privacy legislation
   - Change management
   - Skills
   - Collaboration
   - Risk management

2. Building/Implementing
   - Technical standards
   - Change management
   - Privacy legislation
   - Technology defects
   - Contractual complexities

3. Operational
   - Collaboration
   - Change management
   - Privacy legislation
   - Skills
   - Lack of business case

Investments in Urban Data Platforms

1. Investment in UDPs should be viewed as a policy decision – a means to integrate data for better service delivery across a city and enabler for different use cases [rather than ROI investment of itself]

2. Decent ROI is possible by linking together a platform with a few services as a package of work, and a proof point of value.

3. This requires that there is a commitment and sensible pathway to pull in other infra/services and other stakeholders onto the platform over time to maximise benefits.

Urban Data Platforms route towards value

**Vision & Purpose**
1. Create shared, citizen-centric vision
2. Facilitate innovation & new business via data marketplace
   - co working living lab & developer kit
   - 3D digital twin visualization
3. Clear governance on Platform- & data ownership
4. Ensure Information transparency / clear data access rights
5. Apply control mechanisms
6. Use of API strategy, which includes pivotal points of interoperability and open data standards
7. Ensure data quality, data security & data variety
8. Long-term investment in UDP facilitates multiple use cases
9. Create transparency about individual objectives of public and private parties
10. Organize UDP, such that 3rd party business models can be facilitated
11. Clear agreements on data ownership, platform openness & possibility for switching in contractual arrangements with vendors
12. Include social & environmental costs and value in addition to financial value in business model analysis

**Design of UDP**
- Governance
- Technology architecture
- Business Models & Finance

**Vendor Lock-in**
- Trust (in UDP)
- UDAP Adoption & Use

**KPIs**
15. Create sustainable services that contribute to public value and facilitate economic growth
16. Use KPIs to assess adoption, quantify success, while learning to improve UDP
17. Use agile approach - continuously iterate in short cycles, learn in experiments (sometimes fail) share success stories

**Facilitators**
- Political sponsorship
- Standards & protocols

**Inhibitors**
- Privacy legislation
- Cross silo/Collaboration
- Change management
- Contractual complexities
- Skills

**Value creation**

**Citizen & Stakeholder Engagement**

1. Develop clear set of business use cases to justify modest (€1-1.5million) ‘enabling investment’ in UDPs

2. Link UDP investment (as horizontal enabler) to several domain specific challenges (vertical business cases), such as urban mobility and smart lighting. This requires a city-wide perspective on the basis functionality of urban data platforms

3. Create a continuous learning process to minimize risks and learn from failures, share success stories

4. Create trust (among all stakeholders involved)

5. Develop clear governance on platform- and data ownership, access rights, rules & regulations

6. Make clear agreements with vendors to avoid vendor lock-in

7. Increase value of the platform - platform value includes social and environmental value in addition to financial value - by ensuring its openness to third parties (data suppliers, developers, research & innovation, other UDPs) -> apply pivotal points of interoperability and use open data standards

8. Develop commitment and pathway to pull in other vertical sector infra/services and other stakeholders onto the UDP over time to maximise benefits
Again, all presently investment in the belief that we are doing the right thing

- **Six ‘city-clusters’** committed to collaborate to scale the smart lamppost
- Common design; **packaged** approach (‘what’); potential joint procurements
- Staged **coordinated readiness** of city clusters, with a templated approach for efficiency (‘tools’)
- **City-needs-led** and **demand-driven**
- Combined SCC01 & EIP-SCC actors
- Aligned with EIP-SCC ambition to **upgrade 10 million lampposts across EU cities**
- Between **400k-1 million** addressable lampposts

**Scale-Up Market Potential:**
- **Demonstrator**: Committed city-cluster municipalities (>€30m investment)
- **Cluster Fill-In**: capture additional volumes (up to €X00m)
- **Regional Adoption**: more than €2 billion savings
- **National Impact** towards the 10mn upgraded lamppost goals; €Xbn investment; >€500m savings
- **Support Hub**: a neutral informed entity to support coordinate, align, synthesise content, report, etc. amongst the city clusters

A very real proof point for a collaborative packaged approach to scale the market – 3 years of persistence; we must stimulate the process to deliver what the market deserves!
1. Create a learning process among the network of EIP SCCs
2. Work on agreed standards
3. Develop a collaborative city needs led approach to engage with the investor community on targeted use cases and solutions (that have scale advantage and can be packaged)
4. Launch smart city funds
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Partner in EU SCC project [http://www.sharingcities.eu/](http://www.sharingcities.eu/)

**Other References**  
EIP-SCC: [https://eu-smartcities.eu/](https://eu-smartcities.eu/)  
SCC projects overview: [https://eu-smartcities.eu/projects](https://eu-smartcities.eu/projects)