Smart City Opportunities for Investments in Greece and Lessons Learnt from the Green Cities Framework

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EBRD – IFI with unique mandate

The European Bank for Reconstruction and Development fosters transition to market economies in countries from Central and Eastern Europe to Central Asia and the Southern and Eastern Mediterranean region:

<table>
<thead>
<tr>
<th>History</th>
<th>AAA-rated International Financial Institution founded in 1991 to meet the challenge of rebuilding the post-communist economies of Central and Eastern Europe</th>
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<tbody>
<tr>
<td>Mission</td>
<td>Foster the transition towards market-oriented economies and to promote private initiatives in countries committed to the principles of democracy</td>
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<td>Core values</td>
<td>Investments must meet strict environmental, social, governance and integrity standards, supporting sustainable development and transparency</td>
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<td>Shareholders</td>
<td>Owned by 67 countries and two inter-governmental institutions, the European Union and the European Investment Bank.</td>
</tr>
<tr>
<td>Client sectors</td>
<td>All key economic sectors including financial institutions, infrastructure, energy and the general corporate sector</td>
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<td>Instruments</td>
<td>Long-term market based debt and growth equity financing and technical assistance</td>
</tr>
<tr>
<td>Staff</td>
<td>From all member countries, working in sector, product, regional, support and control functions</td>
</tr>
<tr>
<td>Locations</td>
<td>Headquarters in London, with over 50 resident offices in its 38 countries of operations in Central and Eastern Europe, Central Asia and the Southern and Eastern Mediterranean region</td>
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</table>
What makes EBRD special?

- **Mandate**: transition toward well-functioning, sustainable market economy – identified 6 transition qualities

- **Policy Connectivity**: engagement multiplier

- **Focus on Private Sector**: key conduit of delivery across the full capital structure

- **Mobilisation**: financial multiplier

- **Market Pricing**: working with markets without market distortion

- **Sector Knowledge & Locally Embedded**: Strong sector teams with network of local offices

- **Preferred Creditor Status**: privileges and immunities provide risk mitigation
A Smart City is a city geared towards addressing the needs of city stakeholders and delivering desired results and value.

"A Smart City uses ICT in an integrated and holistic, collaborative, & sustainable approach across vertical segments and the wider economy, to cater to the needs of citizens, organizations, and other important stakeholders through improvements to competitiveness, inclusivity, governance, green-ness, resilience & integration.

Source: Arthur D. Little

EBRD with the support of Arthur D Little is currently assessing Smart City Opportunities in Greece through a Technical Cooperation Project.
Smart City overview

The vertical segments are enabled via horizontal layers

A. Vertical segments
   - Commun.
   - Utility
   - Transport
   - Building aut.
   - PPA*
   - Security
   - Health
   - Retail
   - Education
   - Fin. Services

B. Horizontal management
   - Data management
     - Open Data
     - Analytics/Big Data
   - Value Creation
     - Business Model
     - Operating Model
   - Ecosystem
     - Partnership/Alliance
   - Governance
     - Regulations (IoT, Data etc.)

C. Technologies
   - Platform Strategy
   - IoT
     (Platform, Sensors, Controllers, Gateways, Connectivity)
   - Cloud

Note: Public planning and administration
Smart City as Problem Solver

We see Smart City solutions today capable of tackling key issues of Greek cities in short term...

Key addressable pain points for Smart City applications in Greece

- **Mobility**
  - Rising congestion puts pressure on cities & populations

- **Pollution**
  - The larger the city, the larger the pollution

- **Urban Health**
  - Urban people live longer becoming more vulnerable to chronic diseases

- **Security**
  - Cyber attacks and identity theft are becoming more widespread

- **Connectivity**
  - Bringing fast-enough speeds to cities is ever more challenging

Smart city works as a problem solver for cities’ and citizens’ pain points

Smart City as Problem Solver

...by leveraging IoT technologies/services and data management significant economic impact can be achieved

**IoT Technology & Services**

- **Digital technologies & services improve citizens life**
  - offering a new experience of city services through enhanced digital use cases
  - smart parking, smart mobility, smart kiosks, ...

**Data Management**

- **Leverage of city data** will enable municipality entities to make informed decisions and improve city management
  - traffic management, cross-leverage of data

**Economic Impact**

- **A “smart” environment creates a positive impact to the city economics through direct & indirect contributions**
  - innovation, economic stimulus, marketing, ...
Five of the most promising use cases are being assessed:

- **Building automation**: Technologies to monitor and automate management of buildings, e.g., smart thermostats, shutters, locks, etc.
- **Smart street lighting**: More efficient LED lamp posts with attached smart elements, enabling big data analytics & use case integration.
- **Smart parking**: In-ground sensors & platform enabling citizens to find parking spots faster and pay easier.
- **Smart waste**: Smart trash bins compressing waste & notifying authorities when full.
- **Personal health management**: Personal smart devices allowing digital doctor’s visits at home.

Source: Arthur D. Little analysis
What makes a Smart City Concept successful from the city perspective?

The best practice of implementation shows six key success factors

- **Long-term strategy**
  - A city’s vision and long-term strategy act as a clear guiding force to drive the various initiatives towards a common goal.
  - Tangible targets and measurable KPIs are needed for ongoing impact/success evaluation.
  - Unclear goals lead to multiple initiatives driven as silos without alignment.

- **Common & open platform**
  - All Smart City initiatives should be built on a single and open platform layer.
  - Either multiple platforms are connected closely or a single abstraction layer exists to centralize data.
  - Data integration into a single database forms the basis for analytics services, enabling better service delivery & data monetization opportunities.

- **New business & finance models**
  - A clear understanding and case-by-case choice of new business/monetization options as well as financing models in the Smart City space is required.
  - Including covering underlying drivers, e.g. the shift from hardware/products to innovative services and solutions, value chain disruption across industries and technological innovations.

- **Ecosystem engagement**
  - Besides top-down strategy implementation, active citizen participation (bottom-up) and 3rd party involvement are needed.
  - City alliances as well as industry partnerships enable city stakeholders to learn from “best practices”, share development efforts/costs and achieve scale on a cross-city level.

- **Phased implementation**
  - The initiatives of a Smart City should not be implemented in parallel but rather in a staged approach.
  - A clear business case-driven prioritization exercise needs to be conducted to identify the most critical initiatives.

- **Citizen awareness**
  - Success is critically dependent upon the information conveyed to the users of Smart City services.
  - A clear communication & marketing plan must be developed across various modes and platforms that can create awareness amongst the users of the available services in the city and how the citizens can make use of them.

Source: Arthur D. Little, expert interviews, Smart City (case) examples

Note: 1) E.g. efficiency increase, GDP increase, cost reduction, social ROI, etc.; 2) After suitable sanitization and declaration of consent regarding citizen data usage.
Several cities aim to become the “Smartest City of the World”, requiring a cross-vertical collaboration to unleash full potential.

**Marketing**
- Improve city image without investing resources

**Pilots**
- Gather experience in Smart City by piloting one vertical before launching a large-scale program

**Vertical**
- Further roll-out Smart City concept by adding new verticals

**Platform**
- Unleash full potential of Smart City through cross-vertical integration

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**Illustrative Positioning**

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**GDP Impact**

- Atlanta
- Bern
- Frankfurt
- Brussels
- Berlin
- Paris
- Helsinki
- Luxemburg
- Vienna
- Barcelona
- Valencia
- Seoul
- Rio de Janeiro
- Dubai
- Nanjing

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Source: Cisco, Arthur D. Little
EBRD Green Cities

**€1 billion framework** to support cities to identify, benchmark, prioritise and invest in Green City measures to improve urban environmental performance through:

**Delivery of strategy and policy support**
- Green City Action Plans (GCAP)
- Policy dialogue

**Facilitating and stimulating Green City infrastructure investments**
- Urban transport
- Water & Wastewater
- District heating
- Building energy efficiency
- Solid Waste
- Street Lighting & Roads

**Building capacity of city administrators and key stakeholders**
Green Cities: Eligibility Criteria

In order to become a part of EBRD Green Cities, cities must meet the following criteria:

1. Located in EBRD’s Countries of Operation

2. Population $\geq 100,000$

3. Conduct a Green City Action Plan

4. Initiate ‘Trigger’ Infrastructure Project in one of the following sectors
   - Solid Waste
   - Water & Wastewater
   - Urban Transport
   - District Heating
   - Public Building Energy Efficiency
   - Renewable Energy
   - Climate Change Resilience
Green Cities process

Example

| Tbilisi Buses | Tbilisi GCAP | Tbilisi Solid Waste |
Green Cities

3 GCAPs adopted
Yerevan, Armenia
Tbilisi, Georgia
Tirana, Albania

11 GCAPs underway
Minsk, Belarus
Sofia, Bulgaria
Banja Luka, BiH
Batumi, Georgia
Zenica, BiH
Belgrade, Serbia
Chisinau, Moldova
Gyumri, Armenia
Sarajevo, BiH
Ulaanbaatar, Mongolia
Amman, Jordan

6+ GCAPs in preparation
Green Cities Impact

Since Nov 2016, EBRD Green Cities has:

- Launched **14 Green City Action Plans**
- Invested **€300 million** in sustainable infrastructure
- Enabled well over **€1 billion** in EBRD & donor finance
- Reduced **368k tonnes CO₂** equivalent to permanently removing **80,000 cars** from roads
Contacts

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