

Implementation of Smart City infrastructure in historical centers of cities

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About us:

The area of Icherisheher is 22 hectares and encompasses hundreds of historical sites – 4 of which are included in the list of world heritage monuments and 28 of which are listed as national heritage monuments. There are 1300 (4500 residents) families residing in Icherisheher, several museums, theatres, hotels, businesses, shops and restaurants at the disposal of residents and visitors to this ancient city. Icherisheher (the Walled City of Baku) with the Shirvanshahs' Palace and Maiden Tower was inscribed on the **UNESCO World Heritage List** in 2000. The Administration was established in 2005 with the aim to preserve Icherisheher territory as an important architectural complex, create legal basis to ensure its socio-economical development, also to increase the state care for protection historical-architectural monuments within the territory and to develop management system of Icherisheher. The Administration combines the function of a local executive power (municipal authority) and central executive power agency. In 2011 Administration has joined to the Covenant of Mayors initiative of the EC.

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- Cities must develop the infrastructures and technologies that will ensure a sustainable, equitable future for all the world's citizens. A smart city is one which develops and implements resource-saving, energy-efficient hard infrastructure to improve urban administration and ensure sustainable urban development, while also making effective use of ICT to increase civic engagement and public participation, ensuring an inclusive, accessible city for all.

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Icherisheher smart city strategy in this way supports and advances the four objectives outlined in the City Vision: to create a city for all residents, to implement resident-oriented government, to maintain an appealing urban environment and to advance the city's status as a financial and cultural center.



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- Icherisheher smart city initiatives have been developed with engagement in the urban experience and in decision-making processes as a founding principle, public participation and collaboration between residents, businesses, NGO's and municipal administration are focal points. The Residents Info, the key project, is a personalized web and mobile communication platform which provides residents with individually tailored, location-specific information and services. The platform facilitates a direct and holistic connection between the city and residents, from alerting residents to neighborhood road works or informing them of the nearest bicycle-sharing station or cultural events taking place in the city.



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- Residents Info encourages residents to proactively engage the Municipality as well: residents can locate events and activities as well as report hazards and follow up on their handling. The city also actively employs social media as a platform for involving the public in municipal decision-making and community improvement initiatives, and the system renders geo-spatial information readily available and easily usable for all.
- Icherisheher's smart city initiatives are all facilitated by free citywide WiFi in public areas and serve to improve municipal services, enhance residents' quality of life and create the conditions for sustainable urban development. Above all they exemplify the city's active, intelligent role in employing technology to heighten civic engagement and ensure a city which is accessible and responsive to all.

Needs assessment

One method of the assessment conducted an online survey along with feedback through workshops, semi-structured interviews and transect walks conducted in the city area. The survey should take participants no more than 10 minutes, covering different areas that are centred on local community needs and are currently being addressed under different smart city projects. The research would be conducted in four stages and would begin with the cross-analysis of smart city and existing or past urban renewal policy frameworks, examination of original Icherisheher Smart City Proposal, documents stating progress or implementation of the smart city initiative, current or past research or community projects on smart cities as well as those organised as part of the smart city project along with budget and investment analysis.



Needs assessment

Its also helping to designing smart cities and infrastructure, according historical-architectural urban landshaft, how to engages citizens at all stages of design of smart city plans? creating awareness among citizens, how to promote smart infrastructure implementation, needs assessments addressing the special needs of marginalized sections of society including inter alia the elderly, persons with disabilities.

In a related development, the Administration of Icherisheher has been created Council of Elder's, Youth Clubs which are also undertaken a review of the performance of the implementing the smart city projects in the city.

Needs assessment

Historical cities which are inscribed to World Heritage List has many limits and restrictions in terms of protection of historical-architectural monuments, for example how to keep balance in street lightning and monuments, visual impact of implementation of smart city infrastructure, ICT innovations to historical-architectural monuments and whole historical sites. We think that exchange of experience and best practices of historical cities on implementation of smart city infrastructure is very important.

Best practices

- **Digital Kiosks:**

Digital kiosks give information about restaurants, retail stores, and events in the immediate area. It also provides mapping for visitors, and can sync with a mobile phone to give additional data as needed. It help for residents, tourists and visitors to visit in historical sites, museums information and provides multi options to get users to their chosen destinations. It really saves time and makes it easy for travelers to find information without actually reading many articles and visiting many sites.

- **Smart Streetlights**

LED streetlights have numerous benefits. One of the main benefits is reduced crime, because the lights automatically brighten when there are multiple people in the area, and dim when no one is around. ROI (Return On Investment) and savings is another important point, with the LED lights just in few years you get ROI and then notice monthly savings on street lighting. There are other benefits of LED streetlights new platform for developing future LED-lighting solutions aims to create energy efficiency and intelligent indoor and outdoor lighting solutions and to generate jobs. Smart Streetlights supports municipalities, regions, and private companies, in cooperation with scientists, with the development of new and improved lighting solutions. It is a promising technology that leads to cost reductions; focusing on quality, the end-user, and energy efficiency.



Best practices

- **Open Data Initiatives**

Every city should support open data initiatives. This system which produces useful and resource-saving apps to improve cities and keep citizens informed. Things like air quality, restaurant sanitation scores, building inspection scores and impending legislation should be readily available for all citizens.

- **Air Quality Sensor**

Living in a city means having a lot of stress and rarely breath fresh air. Uses internal sensors to measure your air quality, temperature, humidity, atmospheric pressure, ambient light – all in one wearable device. In other words, it helps our residents to stay healthy and explore their environment. It takes data from your environment in real-time and turns it into actionable recommendations to keep you healthy. Having data and a smartphone app, you can know if you need to open a window in your home, take a bike and choose a different route to work, or get more or less sun. These recommendations help to change behaviors and improve your quality of life.

Measures to reduce CO2 emissions on the local level

-In the transport sector:

-for placement of environmental check point services at entrances to the Municipality to control greenhouses emissions exhausted by cars engine before they will enter to the city. In case emissions from the car will exceed standards the owner of the car will be informed and driving of the car in Reserve area will be banned.

-In the building sector:

-This pattern of energy waste is particularly suited to control by occupancy sensors, which not only prevent runaway operation after typical business hours, but also capture savings during the business day.

- In public lightning sector:

- replace all outdoor lighting bulbs with more efficient LED bulbs

Measures to reduce CO2 emissions on the local level

Residential buildings sector:

- Renovating of windows
- Renovation of roofs

Public activities with citizens and stakeholders:

Public awareness programs

Bicycle culture propaganda actions

Public campaign and networking

Measures to reduce CO2 emissions on the local level

Promotion of energy efficient products and services

- Following three actions undertaken by Old City administration to support energy efficient product and services:
- The Administration of Icherisheher implementing requirements of energy efficiency criteria in tender conditions for all services and infrastructures in municipality area.
- The Administration promoting annual city competitions to identify business and institutions that have achieved highest performance indicators of social and economic development.
- The Administration award green prize to any manufacturer, business for installation of renewable energy facility and use less traditional sources of energy.

Thank you for attention