



March 2020

# UNITED FOR SMART SUSTAINABLE CITIES, KEY PERFORMANCE INDICATORS



ORCHESTRACITIES.COM



# **UNITED FOR SMART SUSTAINABLE CITIES, KEY PERFORMANCE INDICATORS – ACTIVELY SUPPORTED BY ORCHESTRA CITIES**

**Martel's Orchestra Cities is a smart city platform taking measurements mandated by the United Nations 'United for Smart Sustainable Cities' initiative to improve urban sustainability**



*"Technology is nothing. What's important is that you have a faith in people, that they're basically good and smart, and if you give them tools, they'll do wonderful things with them."*

Steve Jobs

## WHY CITIES?

By 2050, nearly 70 percent of the global population will be living in cities, up from 50 percent today. Cities account for more than 70 percent of global carbon emissions.

Cities are innovation hubs driving economic development, but urbanization can have a negative impact on the environment and on citizens' health. With the global adoption of the 2030 Agenda for Sustainable Development, cities are encouraged to make better use of information and communication technologies (ICTs) to address urban challenges.

In particular, sustainability is measured and achieved through Sustainable Development Goal (SDG) 11: 'Make cities and human settlements inclusive, safe, resilient and sustainable'.

Martel's Orchestra Cities is answering this call to action through its open source platform which enables digitally empowered and sustainable smart cities. By allowing cities to easily collect, process and share data, analytics, insights and services, Orchestra Cities provides the foundation for a citizen-centric IoT-based platform able to help reduce their costs and drive their digital transformation.

Orchestra Cities was designed as a multi-function platform allowing a broad range of IoT-enabled applications and services, including waste and water management, transportation, air quality monitoring, traffic and parking, and more, to be effectively defined, offered and monitored.

# WHAT MAKES A SMART SUSTAINABLE CITY?

Many factors combine to make a smart sustainable city: sound political guidance, regulations, investments, education, infrastructures, resource management and consideration of socio/economic and environmental aspects. This hugely articulated and complex range of requirements can be guided by harnessing ICTs for improved decision-making. ICT can support making cities smart and sustainable by helping with efficiency in urban operations and services, improving quality of life and environmental sustainability. Moreover, urban data platforms can collect raw information and provide insights that help city officials to define policies bringing about smart sustainable cities.

The definition of a smart sustainable city, according to the UN's ITU is as follows:

---

*“A smart sustainable city is an innovative city that uses ICTs and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects”.*

---

The UN has launched an initiative '[United for Smart Sustainable Cities](#)' (U4SSC) which is coordinated by ITU, UNECE and UN-Habitat and supported by 15 entities: CBD, ECLAC, FAO, ITU, UNDP, UNECA, UNECE, UNESCO, UN Environment, UNEP-FI, UNFCCC, UNIDO, UNU-EGOV, UN-Women and WMO.

U4SSC serves as the global platform to advocate for public policy and to encourage the use of ICTs to facilitate and ease the transition to smart sustainable cities where ICTs are merged with traditional infrastructures. ICT has a crucial role in smart sustainable cities as it acts as the platform for the aggregation of information and data to help enable an improved understanding of how the city is functioning in terms of resource consumption and services.

# UNITED FOR SMART SUSTAINABLE CITIES KPIS – SUPPORTED BY ORCHESTRA CITIES

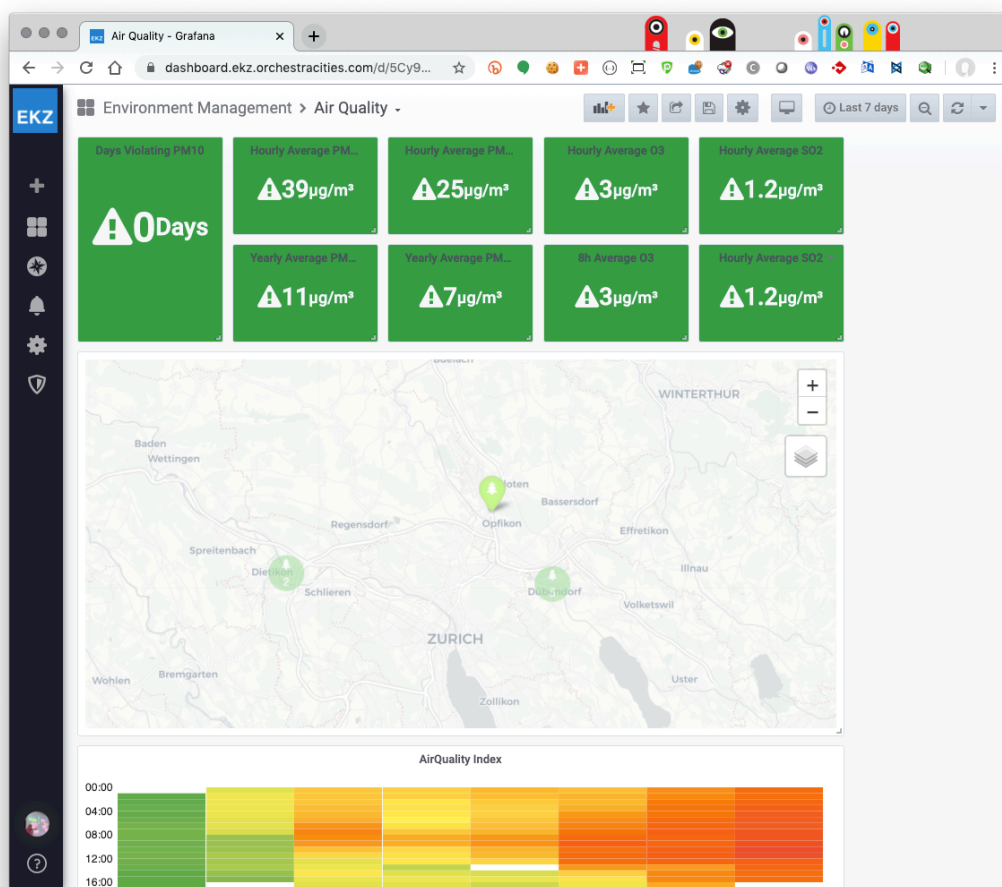
The United for Smart Sustainable Cities initiative has developed [a set of international key performance indicators \(KPIs\) for smart sustainable cities](#) to establish the criteria to evaluate ICT's contributions in making cities smarter and more sustainable, and to provide cities with the means for self-assessment towards the achievement of the relevant SDGs.

These indicators have been developed to provide cities with a consistent and standardized method to collect data and measure performance and progress to achieving the SDGs, becoming a smarter and more sustainable city. Three main dimensions help group and understand these KPIs: economy, environment, and culture; further clarity and detail is communicated by the definition of a core KPI group, which any city should be able to report on, and an advanced group for which the measurement and reporting may not always be feasible.

Orchestra Cities as a flexible urban data platform can directly collect and monitor key data listed by U4SSC as KPIs for smart sustainable cities under the rubrics of 'economy' and 'environment'. Moreover, through system and Open Data integration, such collected data can be meaningfully combined with, e.g., traffic and weather information to gain additional insight and set up simulation scenarios. Urban sensors can provide city stakeholders with access to real-time spatial, economic and environmental information about their cities. This can help governments, businesses and citizens plan better economic, social and environmental development - and enjoy a more sustainable city life.

# ORCHESTRA CITIES – ACTIVELY MEASURING ENVIRONMENTAL INDICATORS FOR AIR QUALITY AND NOISE POLLUTION

Orchestra Cities is adopted as the core platform for a smart city project within an ongoing partnership between Martel and Elektrizitätswerke des Kantons Zürich (EKZ). In this project, Orchestra Cities performs several measurement and processing activities of environmental data, such as air quality and noise pollution in the town of Dietikon.



The Orchestra Cities air quality dashboard for Dietikon area





Leveraging Orchestra Cities capabilities, Martel integrated two sensor providers for noise pollution and seven sensor providers for air quality, collecting more than 750,000 data points in the last six months.

Collected data are organised in real-time dashboards providing live insights about city environmental conditions, taking into account [Swiss legislation on air quality](#). Alarms are triggered when any violation occurs.

EKZ and Martel have additionally been exploring advanced analytics and data forecast mechanisms: by integrating traffic data from publicly available APIs forecast models for air quality, taking into account expected traffic levels, were computed.

## **ORCHESTRA CITIES – FIND OUT MORE ABOUT OUR SMART CITY PLATFORM**

Orchestra Cities was developed initially as part of the Select4Cities public pre-procurement and now continues to be managed directly by Martel Innovate within a community-based open source development process. The platform was tested with several cities – Antwerp (Belgium), Helsinki (Finland) and Mexico City (Mexico) and is currently being adopted by Wolfsburg (Germany) and the EKZ multi-utility provider in the Canton of Zürich.

The smart city platform is a working example of leveraging IoT for the sustainable digital transformation of our society and economy. Measuring and achieving a better environment is aligned, not only with the SDGs, but with other multilateral agreements.

**[CONTACT US TO KNOW MORE!](#)**



**DO YOU WANT  
TO BE THE NEXT  
ORCHESTRA CITY?**



**[ORCHESTRACITIES.COM](https://orchestracities.com)**



**[@ORCHESTRACITYEU](https://twitter.com/orchestracityeu)**

**CONTACT US AT [INFO@ORCHESTRACITIES.COM](mailto:info@orchestracities.com)**