Vienna

In 2014, Vienna City Council created the Smart City Wien Framework Strategy, which sets milestones regarding the sustainable future development of the city and places emphasis on social inclusion. Vienna has adopted a unique approach to focusing on quality of life. Its residents have expressed a need for affordable and functional housing, renewable energy, and ecofriendly mobility.

The recent success of Austria's Green Party, which joined the nation's government in January 2020 and aims to make Austria a climate-neutral country by 2040, may be a boost for Vienna's smart city project. Moreover, as Austria's federal capital, Vienna has received many awards and prizes.

The Smart City Wien Framework provides a long-term strategy and supplies the necessary orientation for the city's development. Updated in 2019, the framework sets goals to be achieved by 2050, and it overlaps strongly with the 2015 Paris Agreement and the EU's objectives.

Among the most important changes made to the framework in 2019 is the alignment of goals and objectives with the United Nations' Sustainable Development Goals. The key strength of Vienna's smart city programs is their intense focus on social inclusion, which is supposed to be incorporated into every aspect of the framework's dimensions, meaning that it extends to areas such as mobility and housing.

The updated framework introduces three new dimensions—quality of life, resources, and innovation—as well as new analytical categories such as climate change, the circular economy, and consumption-based material use. Additionally, "digital environment" and citizen participation were introduced by Vienna City Council as new targets.

Governance and citizen participation represent essential priorities for all smart cities, and this is especially the case of Vienna, where social inclusion of the elderly and public-private-university collaboration on medical services and care for the elderly are critical, demonstrating the need to readapt cities for all generations.
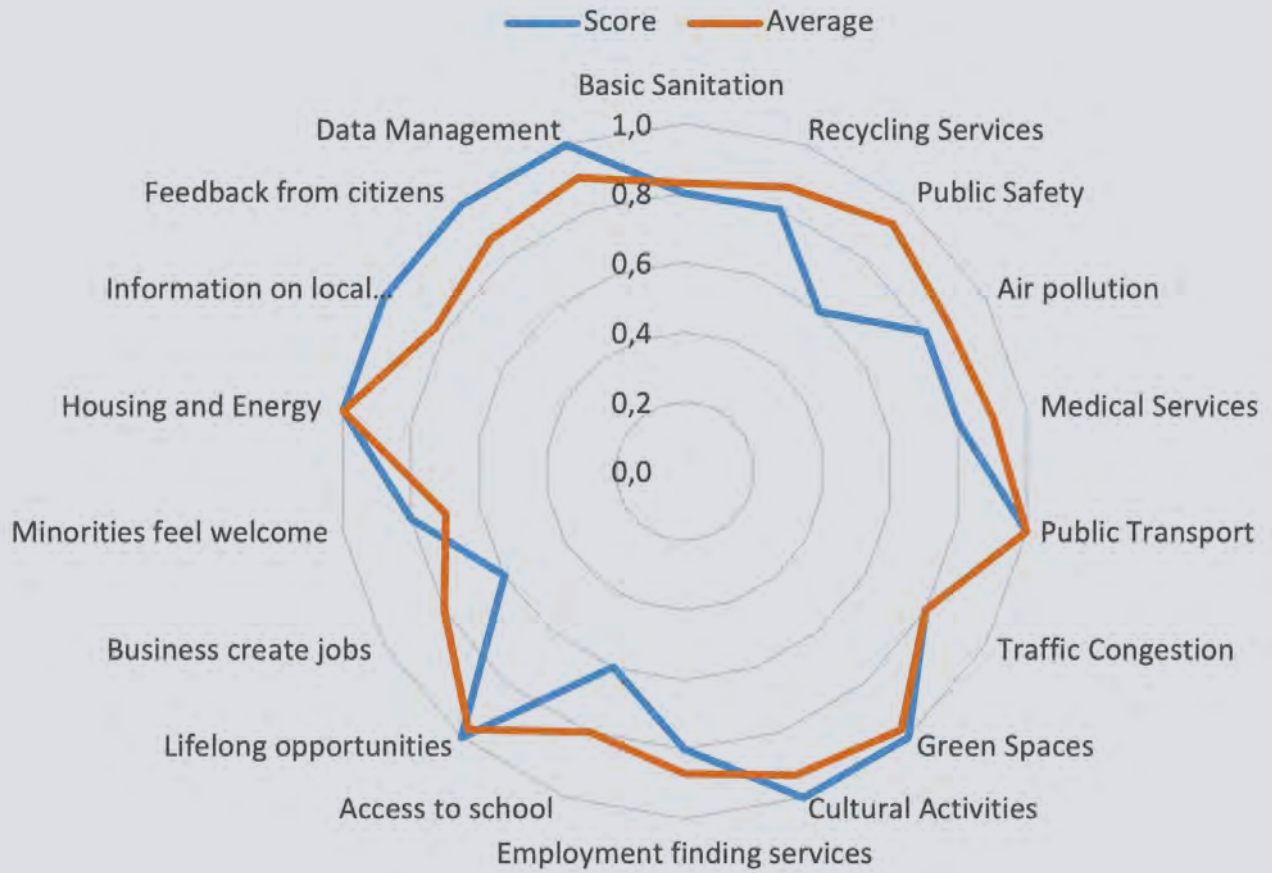
Vienna

Chart type designed to plot 18 factors translated into values over multiple quantitative variables.

Blue line is about the city and Orange line is the average value for the six selected cities. It should be used with care.

Executive summary

Vienna has adopted a unique smart city strategy that is based on an awareness of the increased pressure that growth is placing on its natural and financial resources. The Viennese smart city strategy strives to answer the following question: How can the current level of quality of life be guaranteed in the future?

Vienna, as Austria's federal capital, has received many awards and prizes,[1] among them top position on the Roland Berger Smart City Strategy Index in 2017 and 2019. Around three million people live in Vienna's metropolitan area. Constant demand for work, revenues, and access to modern infrastructure illustrates the social need for affordable and functional housing. In addition, expectations to use renewable energy sources and ecofriendly mobility tools are high in the Austrian capital.

In the political arena, for the first time in its history, the Green Party joined Austria's national government in January 2020, doing so alongside the center-right People's Party in a move that blocked the Far Right from taking a second term in office. The coalition that was formed at that time aims to put Austria on a path to becoming climate neutral, which means greenhouse gas emissions are counterbalanced by measures that absorb or eliminate carbon, by 2050. That time frame would make Vienna climate neutral ten years earlier than the EU aims to achieve that status.

The Smart City Wien Framework (SCWF), the first version of which was launched in 2011, provides a long-term strategy and orients the city's development. Rapid changes have made it necessary to periodically review and adjust the framework. The Smart City Wien Framework Strategy 2019-2050 (SCWF 2019-2050),[2] in its present form, was agreed upon by the municipal council on June 26, 2019.

The Smart City Wien Framework is part of Vienna's identity and lies at the heart of the city's planned social and ecological transformative strategies. The SCWF appears to be rooted within the green economy paradigm. Some scholars have raised concerns about its compatibility with a redistributive economic and social policy (Brandl & Zielinska, 2020). One question concerns the possible outcome of mixing ecological initiatives and the social democratic legacy of past decades' economic policy: Is the result more likely to be a green social democracy project or ecosocialism?

The 2011 version of the SCWF had a strong focus on technological innovation. In 2013, the project's steering group decided to expand the framework strategy. The document was created "in a participatory process involving numerous group discussions, thematic workshops and interviews with more than 100 experts… The main topics of the framework strategy were then rendered concrete, leading to the formulation of objectives" (SCWF 2019-2050). As a result of social, technological, and economic issues, as well as of the growing importance given to climate issues within the international political scene, the SCWF was updated in 2019.

One of the most important new aspects of the 2019 version is the alignment of goals and objectives with the UN's SDGs (see Chapter 1). The updated version introduces three new dimensions: quality of life, resources, and innovation in energy and mobility. New topics such as climate change, the circular economy, and reduction in resource use (via waste management and recycling processes) were added. Moreover, digitalization and citizen participation also became new, high-priority goals. Afterwards, some specific methods have helped to select indicators that have been qualified. On top of that, some metrics on governance principles have been added.

Some analysts think that the structure of the SCWF clearly reflects the holistic nature of Vienna's collaborative policy.[3] To achieve the goals that the 2019 SCWF sets, profound transformation of many aspects of the city's life will be required. For example, the targeted preservation of resources requires, at the city level, more efficient practices that are characterized by clear policy and planning to reduce greenhouse gas emissions. The city has set objectives of a 35 percent reduction in GHGs and resource use by 2030 and of an 80 percent reduction in them by 2050 compared to 1990 levels.

To achieve these targets, Vienna has established specific policy goals that fit into the following nine dimensions of our study's framework:

Health:
The City Council aims to have delivered a two-year increase in the Viennese population's healthy life expectancy by 2030. Life expectancy has risen rapidly in the city, and a strong priority for the council is to make sure residents enjoy good health in these additional years of life.

Basic sanitation:
Vienna's water and its water treatment system meet the highest levels of quality. The city's efficient water network is the result of a hundred years of sustained investment by the City of Vienna. It is estimated that the sum of thirty million euros per year is invested in the network (Smart City Wien Framework Strategy 2019–2050, 2019).

Recycling services:
Waste recovery is a part of the transition to a circular economy. In order to maximize recovery in Vienna, the entire waste management chain for both commercial and household waste has been reengineered. All stages, from garbage production through to the processing of recyclables for use as secondary raw materials, have a clear customer-oriented focus.

About 60 percent of the waste produced annually in Vienna is subjected to thermal treatment at one of four waste incineration plants, which cogenerate energy for district heating or cooling and electricity. Not only is Vienna's waste management essential to making the Austrian capital a clean city, but it has also helped to reduce output of CO_2 equivalents by 550,000 tons annually and consequently reduce pollution (Smart City Wien Framework Strategy 2019–2050, 2019).

Mobility:
The city has set the target that before 2030 at least 70 percent of all day-to-day trips in the city will continue to be short distances of under five kilometers, with the majority being made by bike or on foot (Smart City Wien Framework Strategy 2019–2050, 2019).

A new urban development called Aspern—Vienna's Urban Lakeside is being created. It should generate twenty thousand jobs (Smart City Wien Framework Strategy 2019–2050, 2019). This new part of the city is coupled with a bundle of innovative mobility measures that contribute to sustainable and smart growth.

Technological improvements installed in Vienna's metro now allow the energy from braking trains to be captured. The testing period for this technology showed that energy captured from trains' braking energy would satisfy the consumption needs of 360 households and an energy cost of up to one hundred thousand euros, as well as delivering a reduction in CO_2 emissions (Urban Mobility Plan Vienna Smart City, 2019).

Green spaces:
The city wants green spaces to continue to occupy over 50 percent of the city until at least 2050. The council also aims to ensure interconnections among and between parks and neighborhoods in order to facilitate access to and safeguard green spaces.

Opportunities:
Vienna is globally known as a hub of a resource-efficient circular economy that is attracting investment and talent.

Housing and energy:
By 2050, the city wants 80 percent of buildings' components to be made from recycled products. The city is aware that its buildings are a major contributor to CO_2 emissions and represent 71 percent of the total waste produced in Austria (City of Vienna Website, 2020). Tackling these issues is a key priority. By using a renewables-based energy system that incorporates devices such as heat pumps and vapor-based district heating, Vienna's smart buildings are helping to cut CO_2 emissions.

Governance:
Since Vienna revised its smart city project in 2014, the city has placed a strong emphasis on collaborative methods. For example, the Shifts in Citizens' Participation project has been developed by the city to support Vienna's urban development and its ecosystem of stakeholders, facilitating access to information and the actors required to create new ideas.

Vienna has a top position within the open-government model among the European capital cities, with over 350 datasets pertaining to the city available (City of Vienna Website, 2020). The city identifies digitalization as a tool for improving residents' quality of life and ensuring that resources are used responsibly. "Digitalization serves the needs of the people" is the City Council's policy, and therefore residents' feedback on local government is essential.

Data:
The City Council wants all processes to be digitalized by 2025. The focus of this digital infrastructure is to supply tools and support in order to optimize energy and resource savings.