City Strategies – Getting Back to the Next Normal

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Cities seem to be the laboratories of change – particularly in view of the recent Covid-19 pandemic. Hit harder by the pandemic and spurred by dramatic life changes during lockdowns, Central European capitals can show the way forward for the rest of their countries. Cities can help us understand changing needs and find and prototype future solutions. As a result, cities may not only improve the lives of their inhabitants but also lead innovation in their countries and with central governments.

In this article, we first focus on the changes the Covid-19 pandemic and lockdowns have imposed on cities. Then, in the context of the overall Central European priority topics, we zoom in on three areas in which cities can act as inspiring leaders for the rest of their countries.

Cities Lead Change in Good and Bad Times

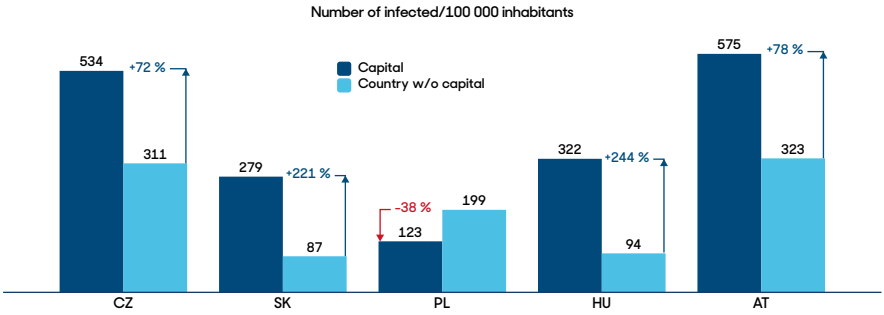
Traditionally, cities are centers of economic activity, places of condensed civilization, intense consumption, and new innovative solutions. The capitals of Central European countries all account for a disproportionate share of economic activity, wealth, and innovation.

In the past few months, though, cities have become the center of spreading Covid-19. The reasons are evident: density of population and difficulty of physical distancing in areas like public transport. Similar to other regions, the first wave of the Covid-19 pandemic struck urban areas at first and Central European countries registered significantly more infected per capita in capital cities compared to the rest of the country. At the time of writing

(mid-September 2020), Budapest, for example, has seen almost three to four times more infections per 100,000 residents, compared to the rest of the country. The exception was Poland, which had its local epicenter in Upper Silesia.[1]

Chart 1: Number of infected in capital vs rest of the country

Source: National statistical services & Ministries of Health of the Czech Republic, Slovakia, Hungary, Poland, and Austria



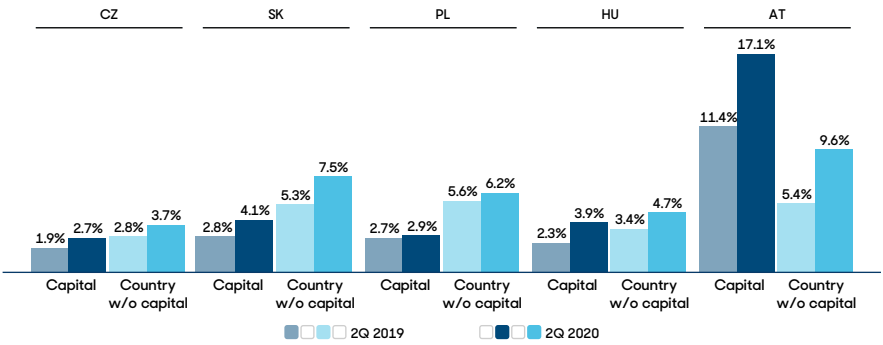
The pandemic and ensuing lockdowns have had a considerable impact on cities across Central Europe, particularly in terms of unemployment. Still, the majority of Central European capitals exhibited surprising resilience to the crisis. The capitals of the Czech Republic, Slovakia, and Poland all enjoyed not only lower unemployment but also better unemployment development than the rest of their respective countries.[2] The notable exception was Vienna, which was the hardest hit and experienced unemployment rising by 5.7pp in Q2 2020 year-over-year and reaching 17.1% – nearly double than in the rest of Austria. This is probably linked to the role Vienna plays as a regional business and transport hub as well as experiencing an earlier onset of the pandemic as compared to the other Central European capitals.

1) McKinsey analysis based on data provided by national statistical services & Ministries of Health of the Czech Republic, Slovakia, Hungary, Poland, and Austria.

2) McKinsey analysis based on data provided by Ministry of Labor and Social Affairs of the Czech Republic, Hungarian Central Statistical Office, Polish Statistical Office, Ministry of Labor, Social Affairs and Family of Slovakia.

Chart 2: Unemployment rates in capitals vs the rest of the country

Source: Ministry of Labor and Social Affairs of the Czech Republic, Hungarian Central Statistical Office, Polish Statistical Office, Ministry of Labor, Social Affairs and Family of Slovakia.



Covid-19 as an Accelerator of Change (Not Only) in Cities

Despite the human and economic costs, the lockdown has brought some positive changes to cities. The urban population in Central Europe, for the first time, did not have to face traffic jams or commutes on overcrowded public transport. For two months, streets and roads were emptied, and the cities enjoyed higher air quality.

The overall volume of cars in the streets decreased between 30% and 50% during the lockdown. In Prague, traffic in transit arteries like V Holesovickach decreased by 30% while congestion spots in the center (e.g., Nabrezi Ludvika Svobody) had a 50% traffic reduction.[3] In Warsaw, the Romana Dmowskiego roundabout, where 100,000 cars pass daily, saw a 40% drop in traffic following the state of emergency.[4] Public transport usage was also seriously impacted; in Prague, the underground utilization fell nearly five-fold.[5]

The traffic decrease clearly demonstrated the link between traffic and air quality. The NO_2 concentration levels in Prague fell by 8% during weekdays and 23% during weekends during the lockdown (mid-March through mid-April 2020), compared to the five-year average.[6]

3) LUDVÍK, Matěj. In lockdown, Prague experienced a one-third drop in the number of vehicles, also peak hours changed. *Idnes.cz* [online]. 4. 4. 2020 [retrieved on: 2020-10-08]. Available at: https://www.idnes.cz/praha/zpravy/doprava-v-praze-ubyla-karantena-koronavirus-praha.A200401_541886_praha-zpravy_rsr.

4) *Mały ruch na drogach* [online]. 27. 3. 2020 [retrieved on: 2020-09-29]. Available at: https://zdm.waw.pl/aktualnosci/maly-ruch-na-drogach/.

5) Drop in the number of passengers transported by almost three-fourths, increase in the number of employees quarantined – Therefore, transport authorities MHMP, DPP and ROPID started to operate on holiday schedule. *Dopravní podnik hlavního města Prahy* [online]. 18. 3. 2020 [retrieved on: 2020-10-06]. Available at: https://www.dpp.cz/spolecnost/pro-media/tiskove-zpravy/detail/278_1068-pokles-prepravenych-cestujicich-o-temer-tri-ctvrtiny-rust-poctu-zamestnancu-v-karantene-mhmp-dpp-a-ropid-proto-v-prazske-mhd-zavadi-prazdninovy-jizdni-rad.

6) SCHREIBEROVÁ, Markéta, Hana ŠKÁCHOVÁ, Leona VLASÁKOVÁ and Lenka CRHOVÁ. *Změna kvality ovzduší na území České republiky v době nouzového stavu (Changes in air quality at the territory of the Czech Republic during lockdown)* [online]. [retrieved on: 2020-09-29]. Available at: http://portal.chmi.cz/files/portal/docs/tiskove_zpravy/2020/COVID_ZPRAVA.pdf.

Temporary improvement in certain aspects of the quality of life provide inspiration for the post-Covid next normal. Even before Covid-19, we already saw long-term improvements in Central European capitals (e.g., in life expectancy, road traffic accidents, and education). In terms of quality of life, Central European capitals already outperform numerous Western cities, for example, Dubai, Los Angeles, and Brussels. However, there still is a gap to bridge in order to reach Western European cities with the highest quality of life. For example, Zurich still outperforms Central European capitals in life expectancy, overall safety, air quality, and road safety (with the exception of Vienna, which is a top performer in terms of road safety).[7]

Chart 3: Quality of life comparison

Source: McKinsey analysis based on data provided by IQAir and GlobalResidenceIndex

	Prague	Bratislava	Warsaw	Budapest	Wien	Zurich	Dubai	Los Angeles	Brussels
Life expectancy – At birth 2018/ change since 2001	80.8/ +4.1	78.8/ +3.7		78.4/ +4.6	80.6/ +2.6	84/ +3.8	77.8/ +3.3	82.5/ –	81.5/ +3.4
Safety index, 2019	80	73	83	76	76	90	81	60	70
Air Pollution – Average 2019 concentration of PM2.5 µg/m³	12	14	17	14	12	11	41	13	14
Victims in road accidents – 2014–18 average, per 100,000 population/change compared to 2009–13 average	2.13/ -1.07	4.26/ -0.26		2.96/ –	0.99/ -0.46	1.77/ -0.91	4.94/ +0.70	6.32/ –	2.00/ -0.62
Population with tertiary education – On population from 25 to 64 years of age, 2019/ change since 2013						54.3/ +9.2	–	–	47.1/ +5.6

Taking into account the needs arising from the Covid-19 crisis, we have singled out three areas in which Central European cities can act as role models to their countries. These three areas also have great potential to close the gap in quality-of-life to Western European cities:

- Digitization of public services and implementation of smart city features
- Support for active mobility (e.g. cycling) and multimodal means of transport
- Environmental protection, in particular in the context of district heating decarbonization

On the following pages, we dive deep into each of these areas and show international examples in order to stimulate debate about the role Central European capitals can play in shaping the next digital normal.

7) McKinsey Analysis based on data provided by IQAir and GlobalResidenceIndex.

Improve City Experience with an All-in-One App

We define a smart city as one in which different parties use digital technology to solve public problems and achieve a higher quality of life. Smart city applications can integrate multiple dimensions of public sphere, such as security, healthcare, energy, water, mobility, economic development and housing, or engagement in public and community issues. The best of these applications directly impact quality of life. A great example are intelligent traffic signals that not only reduce commute time and GHG emissions but also shorten emergency response time and fatalities.[8]

Dubai is one of the most prominent pioneers of the smart city concept. While Dubai's approach to city planning, development, and management is hardly replicable in Europe and Dubai does not score well in many other quality-of-life indicators, selected elements can be a source of inspiration. According to Sheikh Hamdan, the Crown Prince of Dubai, technology can be used as "a key to a balanced and happy life." He said this when announcing the plan to develop Dubai into a smart city, pledging to turn it 100% digital within four years, with the Dubai Government issuing "its last paper transaction in 2021."[9]

A key component of *Smart Dubai* is *DubaiNow*, a smartphone app that is part of the wider government vision to go paper-free by 2021. It is a one-stop-shop smartphone application launched in 2017 for Dubai residents that provides digital access to more than 120 services across ten key areas.[10] Interestingly enough, besides digitizing public and city services, *DubaiNow* created a digital services ecosystem by integrating the services of a number of private companies.

The services in *DubaiNow* relate to the day-to-day needs of Dubai residents: paying local bills, renewing car registrations, settling traffic fines, checking children's vaccinations, locating a doctor, or applying for permanent residency. According to official city data, between March and May 2020, the application has processed 700,000 transactions worth AED 358 million.[11]

8) WOETZEL, Jonathan, Jaana REMES, Brodie BOLAND, et al. Smart cities: Digital solutions for a more livable future. *McKinsey* [online]. 5. 6. 2018 [retrieved on: 2020-10-06]. Available at: https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/smart-cities-digital-solutions-for-a-more-livable-future.

9) BALDWIN, Derek. Dubai unveils plan to go paperless by 2021. *Gulf News* [online]. 16. 4. 2017 [retrieved on: 2020-09-29]. Available at: https://gulfnews.com/uae/government/dubai-unveils-plan-to-go-paperless-by-2021-1.2012405.

10) *Smart Dubai* [online]. [retrieved on: 2020-09-28]. Available at: https://www.smartdubai.ae/apps-services/details/dubai-now.

11) DubaiNow Application Processes 700,000 Transactions Worth AED 358 Million in 3 Months. *Gulf News* [online]. 2. 7. 2020 [retrieved on: 2020-09-29]. Available at: https://www.smartdubai.ae/newsroom/news/dubainow-application-processes-700-000-transactions-worth-aed-358-million-in-3-months.

Several core principles, applicable also to Central European capitals, have contributed to the success of *DubaiNow*.

- **Mobile-first strategy**: *DubaiNow* has primarily been developed for smartphones (iOS and Android) to cater to the broadest possible range of occasions and facilitate convenience of use. While a PC version exists, it is not actively advertised.
- **Common front end for all services:** The app currently integrates services from over 30 entities while ensuring a common interface and a single logic for building customer journeys.
- **Focus on user experience:** The app supports dashboard personalization so users can view only those services that are relevant to them. In addition, users are encouraged to give feedback on various services. Dubai has also launched a separate *Happiness Meter* app to gather even broader feedback on the quality of life in Dubai.
- **Digital identity:** The authentication process is based on a legally accepted nationwide digital signature app, *UAE Pass*, that citizens use to digitally sign documents and access government and other city services. The *UAE Pass* is a critical enabler in a successful effort to digitize government services and digitize contracts.[12]
- **Development platform:** Dubai OS is the underlying platform, enabling a continuous integration of multiple services. Its design uses clear visualizations to ensure consistency within the app while minimizing the usage of coding during development.

Smart Dubai's officials believe that, due to the digital readiness of the city, there has been only minimal disruption of public services caused by the Covid-19 pandemic. [13] The principles behind the *DubaiNow* app are not only applicable in the EU, but we know of governments that have embarked on similarly ambitious efforts. For Central European cities, such an approach could cut through the complexity of numerous applications, disparate data sources, and legacy customer journeys. Most (though not all) parts are possible to implement within the current decision-making power of city authorities.

Improve Public Health and Happiness by Active Mobility

City mobility needs to optimize for many variables – time, financial costs, safety, accessibility, and impact on the environment and public health. The preference for urban transport is a long-established urban planning paradigm in Central European cities. However,

12) AL-AZZAWI, Ali and Hamad AL AWADHI. *Covid-19 City Experience Resilience & Impact Report* [online]. [retrieved on: 2020-09-29]. Available at: https://www.smartdubai.ae/docs/default-source/publications/covid-19-city-experience-resilience-impact-report.pdf?sfvrsn=9a889de9_14.

13) *Smart Dubai* [online]. [retrieved on: 2020-09-28]. Available at: https://www.smartdubai.ae/apps-services/details/dubai-now.

the pandemic introduced new considerations for travelers, imposing the risk of infection as a previously unknown cost on all means of mass transport.

Luckily, cities already have many transportation options at their disposal, and technological development constantly adds new ones. A decade or two ago, not many people would have bet on the mass popularity that bicycle- or scooter-sharing schemes seem to be gaining.

One type of mobility that stands out in city planning is active mobility. It is defined as transport based on human physical activity only, i.e., without any motorized means. The most common forms include walking and cycling. If a person has all needed services nearby, the reduction in car traffic would have a positive impact on the air quality, carbon footprint, and the overall traffic situation in the city. Active mobility also improves health – not only curtailing Covid-19 and other infections, but via the impact on the environment and immunity. It also contributes to a reduction in non-communicable diseases (e.g., diabetes and circulatory diseases). Cities around the world have embraced active mobility in their anti-Covid efforts. For example, Bogota, Colombia, recently added 76 km of bicycle lanes. In Oakland, California, the city transformed 120 km of roads to pedestrian or cycling zones – all to support social distancing.[14]

However, active mobility delivers its full potential only when it is embedded in urban planning from the outset. A great example of a district supporting active mobility is the Warsaw district Wilanów. This district ranks among the most successful in Poland, with the second-lowest unemployment rate (1.3%, 2018), the highest life expectancy, and the lowest obesity rate of all Warsaw districts. There is also a remarkable data pattern of the highest birth rate in Poland (22 per 1000 inhabitants, 2018) with the highest share of women with tertiary education[15] – statistics that are typically negatively, not positively, correlated. Apart from a higher share of younger adults in the population, urbanists find an explanation in the layout of this district – nearly all services are within a walkable distance, including shops and services, schools for all ages, kindergartens and playgrounds, which implies a lower time burden for parents.

New district developers and also local politicians can find inspiration in Wilanów. Findings can also be applied to already existing districts – for example, by retrofitting existing spaces to recreate landscapes and creating a better balance of activities in the neighborhood, or redesigning pedestrian and cycling zones. An alternative lever to encourage

14) HAUSLER, Saskia, Kersten HEINEKE, Russell HENSLEY, Timo MÖLLER, Dennis SCHWEDHELM and Pei SHEN. The impact of COVID-19 on future mobility solutions. *McKinsey Center for Future Mobility* [online]. 4. 5. 2020 [retrieved on: 2020-09-29]. Available at: https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-impact-of-covid-19-on-future-mobility-solutions.

15) Panorama of Warsaw districts in 2018. *Statistical Office in Warszawa* [online]. 31. 12. 2019 [retrieved on: 2020-10-06]. Available at: https://warszawa.stat.gov.pl/en/publications/others/panorama-of-warsaw-districts-in-2018,1,15.html.

active mobility is to ensure that laws sufficiently protect pedestrians and cyclists. Another consideration is geofencing in urban areas to control how fast and where vehicles can travel.

Make City Transport More Effective by Going Multimodal

Active mobility is not suitable for every journey around the city. Sometimes, inhabitants need to travel faster, go longer distances, or get around in unfavorable weather conditions. In these cases, multimodal transport represents an effective solution that cities should promote. Multimodal transportation allows seamless connectivity between a range of transport options like buses, trams, trains, and also walking, cycling, riding a scooter, etc.[16]

How do governments motivate people to leave the comfort of their cars and switch to multimodal transport? The answer is convenience, costs, sustainability, and creating real-time mobility systems, where the user is in control.[17] However, to make multimodal mobility appealing to most users, there needs to be a one-stop-shop for all city transportation options such as trams, bicycles, trains, buses, shared cars, and scooters. This integrated solution (Mobility as a Service – MaaS) needs to create a single seamless journey based on real-time data, allowing reliable planning and supporting different payment options.

The shift towards multimodal mobility has been shaped by both pre- and post-Covid trends. Lower consumer reliance on private car ownership, flexibility, and sustainability are complemented by technology-enabled options, such as car sharing, car-pooling, the emergence of e-scooter and e-bike providers, and the application of AI to transport management and planning. Furthermore, Covid-19 has had a significant impact on the transport and automotive sectors. This year, a rapid fall of 22% in global car sales is expected, while bicycle use is increasing. London, Milan, and Seattle are making new cycle lanes permanent, and New Yorkers' bike use is up over 50%.[18]

For multimodal mobility to achieve its potential, it needs to be developed in close collaboration between transportation providers, city planners, payment solution providers, and other stakeholders. Digitization, in particular open data and open API, can help develop and perfect new and existing customer services related to mobility. For instance,

16) LAWRENCE, Cate and Jochen SCHWAB. Multimodal Mobility is Creating People-centric Transport. *Intelligent Mobility Xperience* [online]. 3. 3. 2020 [retrieved on: 2020-09-29]. Available at: https://www.intelligent-mobility-xperience.com/multimodal-mobility-is-creating-people-centric-transport-a-908656/.

17) Moving towards multimodality with Mobility as a Service. *Sustain Europe* [online]. 28. 10. 2019 [retrieved on: 2020-09-29]. Available at https://www.sustaineurope.com/moving-towards-multimodality-with-mobility-as-a-service-20191028.html.

18) DOMKE, Christoph and Quentin POTTS. Multimodal mobility is a transportation revolution. *Automotive World* [online]. 23. 6. 2020 [retrieved on: 2020-09-29]. Available at: https://www.automotiveworld.com/articles/multimodal-mobility-is-a-transportation-revolution/.

Transport for London (TfL) provides its API to more than 17,000 developers, and its data is leveraged in more than 600 apps that create many customer services.[19]

There are numerous opportunities to expand or develop this ecosystem, such as:

- Using digital signage or mobile apps to deliver real-time information about delays to enable riders to adjust their routes on the fly
- Installing IoT (Internet of Things) sensors on existing physical infrastructure to help crews perform predictive maintenance and fix problems before they turn into breakdowns and delays
- Collecting and analyzing data on public transit use and traffic to help cities make better decisions about implementing new bus routes
- Installing traffic signals and turn lanes
- Adding bike lanes

Many urban transit systems, such as those in Houston and London, are starting to go ticketless with digital payment systems. Some are going a step further by offering flat-rate mobility subscriptions that cover multiple modes of transportation.[20]

A number of world cities are currently working on MaaS solutions, an example being the *Smart Ways to Antwerp* (SWtA) project, which aims to provide users with possible journeys combining different modes of transportation, including cars, public transport, shared bikes, and walking, either on a website or a dedicated app. Another solution is the *Whim* mobile app, available in several European cities and expanding to the U.S. This MaaS offers a subscription service for public transportation, bike rentals, ridesharing, scooter rentals, taxis, or car rentals. Customers can opt for an all-inclusive package for EUR 499 a month with unlimited use of services.[21] MaaS solutions are already being rolled out in Central Europe. A Prague app called *Citymove* is able to compare the expected time and price of city transportation options, including shared scooters. The single point of access to mobility nudges drivers to prefer public transport by offering transparency about the travel time each type of service requires.

19) LAWRENCE, Cate and Jochen SCHWAB. Multimodal Mobility is Creating People-centric Transport. *Intelligent Mobility Xperience* [online]. 3. 3. 2020 [retrieved on: 2020-09-29]. Available at: https://www.intelligent-mobility-xperience.com/multimodal-mobility-is-creating-people-centric-transport-a-908656/.

20) WOETZEL, Jonathan, Jaana REMES, Brodie BOLAND, et al. Smart cities: Digital solutions for a more livable future. *McKinsey* [online]. 5. 6. 2018 [retrieved on: 2020-10-06]. Available at: https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/smart-cities-digital-solutions-for-a-more-livable-future.

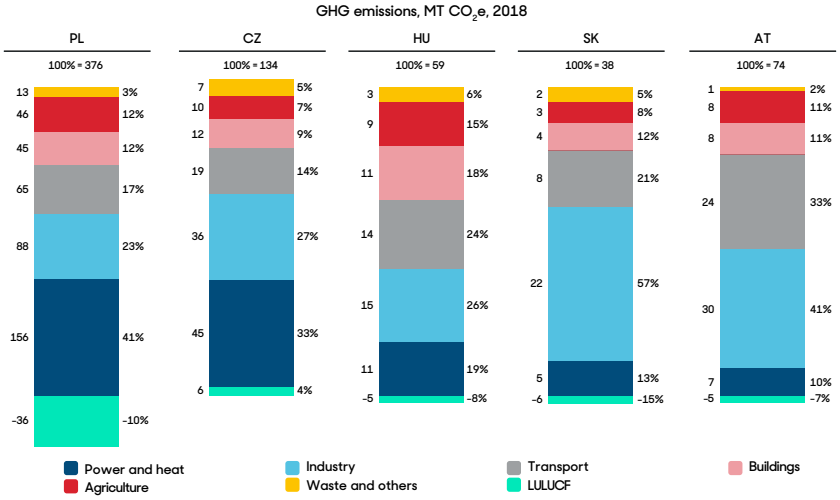
21) *Whim* [online]. [retrieved on: 2020-09-29]. Available at: https://whimapp.com/.

Protect the Environment with a Long-Term Heating Plan

Heating is essential for cities' residents. Having a city vision for district heating (DH) can help reduce greenhouse gas (GHG) emissions, so citizens enjoy better air quality. For Central European countries, power and heat is within the top three GHG-emitting sectors.[22] Apart from GHG emissions, DH can also release gases such as CO or NOx, which cause air pollution and negatively influence citizens' health and well-being.

Chart 4: Distribution of GHG emissions in V4 countries and Austria

Source: Eurostat



Most city households are severely constrained in choosing how to satisfy their heating needs. In many cases, no carbon-efficient alternatives to DH exist. Households might not be able to install an alternative heating solution, or the switch is not economical (e.g., due to the consumption pattern profile). Even when households do have alternatives to DH, such as gas heating in houses, uncoordinated switching away from district heating might not be desirable. As the DH customer base decreases, the unit economics worsens, which can cause the entire system to unravel in a self-reinforcing spiral. As a result, the city may become more polluted without reducing GHG emissions – a clearly inferior outcome to the planned deployment of decarbonized alternatives.

22) Greenhouse gas emissions by source sector (source: EEA). *Eurostat* [online]. [retrieved on: 2020-10-06]. Available at: https://data.europa.eu/euodp/cs/data/dataset/pul4tJIixpN9RNrly384g.

Currently, decisions are not fully in the hands of Central European cities. Heat sources and heat distribution networks are often privately held. Furthermore, these industries are typically regulated by a centralized energy regulator.

In this complex setting, cities need to develop a long-term vision for their district heating, i.e. answer the following questions:

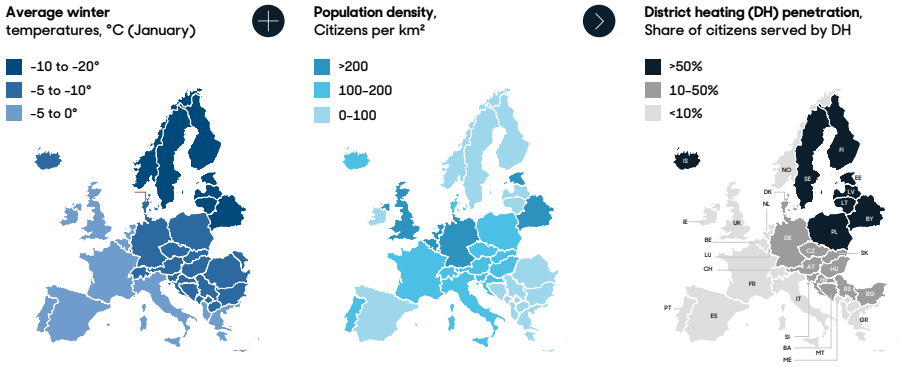
- How to keep the current DH but reduce energy losses in the network and decarbonize the energy source. Specifically, cities that rely on coal sources (mainly in the Czech Republic and Poland) need to figure out how to use gas as a transition technology. Beyond that, waste-to-energy provides an alternative (e.g., the primary energy in an Austrian DH system is provided by 45% biomass and ~8% residual waste).[23]
- How to use hybrid solutions, such as integrating energy sources like heat pumps or clean fuel (e.g., hydrogen) boilers into the heat exchange stations on the DH network.
- How to plan for local decarbonized solutions, such as heat pumps or clean fuel (e.g., hydrogen) local boilers.

There is no one-size-fits-all solution to district heating, which is why the solution needs to be developed through the city agenda. The plan needs to be developed considering climate, because DH penetration is closely linked with average winter temperatures; population density; urban development (e.g., technology applicability in historic city centers), and the already developed DH infrastructure.

23) *KeepWarm* [online]. [retrieved on: 2020-09-29]. Available at: https://keepwarmeurope.eu/countries-in-focus/austria/english/.

Chart 5: District heating penetration

Source: McKinsey



District heating was not developed in Norway, due to availability of natural gas, which enabled low cost and environmentally friendly local heating.

The plan for DH development, similar to long-term land-use plans, should coordinate the interests of all stakeholders. It can create long-term stability and outlook for the private investor. Furthermore, stability can lead to competition development or public-private cooperation. By standing up to the challenge and defining the DH vision, cities can reduce GHG emissions, provide stability within the DH industry, and improve well-being for its citizens.

The Covid-19 crisis has taught us many lessons; one is that change can be accomplished much faster than people may have imagined, both in public and private matters. Digital transformations around the world have progressed at unprecedented speeds in the last months, and Central European capitals can play a pivotal role in the current ongoing societal transformation. Cities, already laboratories of change and pioneers of new solutions, can aspire to be role models that set standards and pave the way for other areas to improve.

In light of recent events, cities should accelerate digitization efforts and smart city initiatives; embrace active mobility; and optimize public transport through modern, multimodal approaches. They should improve citizens' health by shifting to more ecological solutions. These initiatives could contribute to the ultimate goal of happy, healthy citizens who are living fulfilling and balanced lives.