



**BUILDING URBAN ECONOMIC RESILIENCE
DURING AND AFTER COVID-19**

**DIAGNOSTIC OF CITY ECONOMIC
RESILIENCE PERFORMANCE
CITY OF KHARKIV**

UN HABITAT
FOR A BETTER URBAN FUTURE



 **UNECE**

 **ECA**



 **UNEP**

Table of Contents

1. Summary	2
2. Introduction	4
Programme context	7
city of Kharkiv context	8
COVID-19 impact.....	10
Key crisis response and recovery measures	11
Diagnostic process	13
Challenges in relation to data.....	15
3. Findings of the diagnostic	15
Methodological notes	16
Resilience of the local business environment	16
Resilience of local labor market.....	20
Resilience of the financial system.....	23
Resilience of Economic Governance	26
3. Conclusions and recommendations	33

1. Summary

The report on indicators of urban economic resilience of the city of Kharkiv is intended to provide an overview of the city's work in various areas of stress resistance and, as a result of such diagnostics, to assess the city's performance, as well as to identify the strengths and weaknesses of the city's economy in terms of stress resistance and to give recommendations on what can be done to increase the resilience of the urban economy towards external influences.

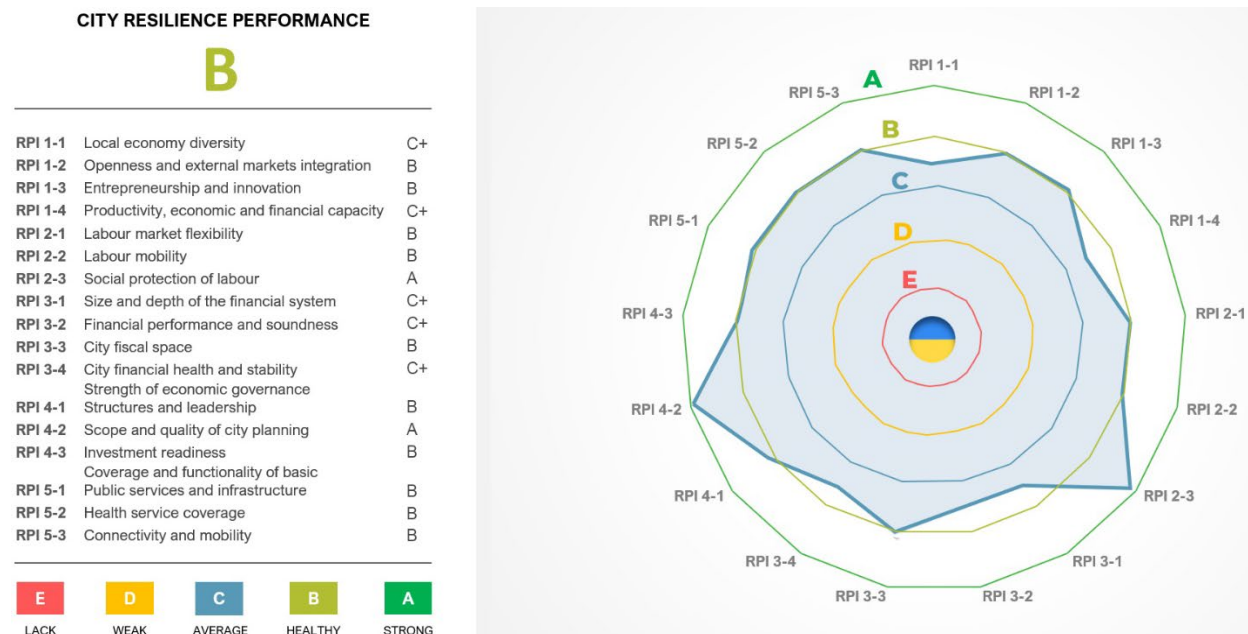
The city's urban economic resilience was diagnosed in five main areas, namely resilience areas (RA):

1. Sustainability of the **local business environment**;
2. Sustainability of the **local labor market**;
3. Stability of the **local financial system**;
4. Stability of the **economic management system**;
5. Sustainability of the system of **basic services infrastructure and connectivity**.

The stability of all five resilience areas forms a prerequisite for the efficiency of the city as a whole.

The results of the diagnostics of the above-mentioned areas of the city's sustainability performance are presented below (see Figure 1).

Figure 1. Kharkiv resilience performance



This figure suggests that the city of Kharkiv at this stage is in a good position to ensure economic and financial resilience. The city was able to guarantee a minimal negative impact from external factors while simultaneously allowing for a swift recovery from the crisis (see Table 1).

Without doubt, the COVID-19 pandemic has had a significant impact on virtually all sectors of life in all corners of the globe leading to significant economic shocks even in the most stable and developed countries, with some areas unable to contend with the “invisible enemy”.

The city of Kharkiv is no exception and the consequences of the outbreak of the novel coronavirus are palpable.

Kharkiv is a large industrial center of Ukraine. The basis of production potential is made up of enterprises of high-tech industries: power-engineering, electrical engineering, transport and agricultural engineering, device manufacturing, radio electronics and the aerospace industry.

Further, as a result of quarantine measures introduced at the beginning of the pandemic, a number of industrial enterprises have temporarily stopped their operations in Kharkiv and the surrounding region. Among the hardest hit by the COVID-19 crisis include medium- and small businesses as well as the self-employed.

The pandemic has already imposed significant restrictions on the socio-cultural life of the population and radically changed the trends of the urban economy. It is currently difficult to predict what the final human and economic losses will be for the city. Therefore, it is important for local authorities to make informed decisions in close cooperation with the state, as well as with leading experts, the private sector and the local population.

The city must pursue an effective socio-economic policy, both under the current quarantine restrictions and throughout the months following its completion.

The main task for local governments in the context of the COVID-19 pandemic is to secure the operation of all enterprises that ensure the life of the city on a continuous basis. Further, it is necessary to ensure the continuation of work of medical institutions at a sufficient level throughout the pandemic.

Despite the findings of the report regarding the city’s urban economic resilience, the city’s economic and financial situation currently remains relatively stable. Against the background of a decrease of 10.8% in the total volume of budget revenues in 2020 compared to 2019, there is an increase in city revenues by 6.6%, allowing for additional resources to be allocated to combat the consequences of the COVID-19 pandemic.

Table 1 outlines the Economic Resilience Assessment Framework with draft score for Kharkiv according to the diagnostic tool (see below).

Table 1. Economic Resilience Assessment Framework with draft scores for Kharkiv

Table 1 - Economic Resilience Assessment Framework with draft scores for Kharkiv						
BUSINESS ENVIRONMENT	RPI 1-1 Local economy diversity	C City product diversity	B Informality	D Public economy strength	A Covid-19 impact concentration	C+
	RPI 1-2 Openness and external markets integration	C Local industrial/ employment quotient		A Local economy openness (export/ import)		B
	RPI 1-3 Entrepreneurship and innovation	B New business creation rate	B Business digitization rate	B Digital access	C State of ecosystem for innovation support	B

	RPI 1-4 Productivity, economic and financial capacity	C	B	D	B	C+
		Business productivity	Business access to electricity	Access to affordable finance	COVID-19 business failure rate	
LABOUR MARKET RESILIENCE	RPI 2-1 Labour market flexibility	D	C		A	B
		Employment diversity	Population/Employment Ratio		COVID-19 induced unemployment	
	RPI 2-2 Labour mobility	B	C	B	D	B
		Occupational labour mobility	Availability of worker (re)training programmes	Geographic labour mobility	Proportion of a household's budget spent on rental housing	
RPI 2-3 Social protection of labour	A	A	A	A	A	
	Unemployment rate	Unemployed receiving unemployment benefits	Informal employment rate	City expenditure on social protection		
FINANCIAL SYSTEM	RPI 3-1 Size and depth of the financial system	D	B	B	C	C+
		City quotient of financial system	Proportion of the population with a bank account	Percentage of adult population with a registered Digital Finance account	Market share of financial institutions offering affordable finance	
	RPI 3-2 Financial performance and soundness	C	C	C	D	C+
		Interest rate spreads	Nonperforming loans rate	Sectorial distribution of loans	Nonperforming loans rate and loans restructured under COVID-19	
RPI 3-3 City fiscal space	A	A	C	C	B	
	City revenue diversity	Share of income inelastic own source revenues	Financial flexibility	Fiscal flexibility		
RPI 3-4 City financial health and stability	F	A	A	B	C+	
	Share of the local financial market	City credit rating	City audit performance	Change in total city revenues under COVID-19		
ECONOMIC GOVERNANCE	RPI 4-1 Strength of economic governance structures and leadership	A	D		D	B
		Inclusiveness of economic governance	Public participation in economic governance		Access to public information on economic issues	
	RPI 4-2 Scope and quality of city planning	C	D	D	C	A
	Comprehensiveness of city planning systems	Integration of crisis management provisions in planning and budgeting	Application of vulnerability assessment methodology	Extent of access and application of digital technologies		
RPI 4-3 Investment readiness	A	C	B	B	B	
	Strategic planning and resilience proofing of investment projects	Access to public land	Intensity of regulation	Quality of investment-enabling environment		
SERVICES, INFRASTRUCTURE AND CONNECTIVITY	RPI 5-1 Coverage and functionality of basic public services and infrastructure	A	A	C	D	B
		Public open space (m2) per 1,000 inhabitants	Average number and length of interruptions per customer per year in the electricity network	Percentage of population with access to water and sanitation services	Percentage of population with regular municipal solid waste collection	
	RPI 5-2 Health service coverage	C	C		A	B
	City quotient for health workers per 10,000 population	City quotient for hospital beds per 10,000 population		City expenditure on health		
RPI 5-3 Connectivity and mobility	A	A	D	-	B	
	Continuity of telephone and Internet operations	Average commuting travel time disaggregated for the key modes of transportation	Total coverage of all superior modes of public transport	Walkability and cyclability		

2. Introduction

The COVID-19 pandemic crisis has exposed socio-economic inequalities and financial system vulnerabilities in the UNECE region, which should consider a holistic approach for Sustainable Development in its recovery plans. This diagnostic analysis report on the urban economic

resilience performance of the city of Kharkiv documents application of the “Diagnostic and Planning Tool (DPT)” and shows the dynamics of the risk facing the urban socio-economic landscape and crucial role of urban economic resilience in recovering better and “leaving no one behind”.

COVID-19 has had a worldwide impact, infecting almost 173 million people and killing nearly 3.7 million worldwide as of June 2021. According to the World Health Organization (WHO)¹, by 8 June 2021, COVID-19 had led to more than 2,216,654 confirmed infections and 51,333 deaths in Ukraine, with numbers continuing to climb.

In this challenging context, Ukraine at the national level urgently needs to build urban economic resilience as a crucial component of its recovery plans, the city of Kharkiv being no exception.

In Kharkiv, the Program of Economic and Social Development for the current year is being developed and implemented. Among other things, the Program regulates the activities of local governments regarding increasing sustainability of the urban economy, taking into account specific conditions, as well as sectoral programs that determine and monitor the development in hotel areas of urban development, allowing for prompt response to changes in circumstances of the external and internal environment.

A report on the economic resilience performance of the city of Kharkiv was prepared in the framework of the [United Nations Development Account tranche 13 project \(UNDA 13th\)](#), “Building urban economic resilience during and after COVID-19”. The project aims to bolster social protection in the pandemic response, particularly under its workstream on strengthening urban economic resilience policies during and after the COVID-19 pandemic, with a specific focus on improving outcomes among the vulnerable population.

This report aims to give an overview of challenges on the urban economic resilience for the city of Kharkiv caused by the COVID-19 pandemic and of the recommended responses. The diagnostic report has as its objective to assist the city of Kharkiv in better understanding the strengths and weaknesses of its institutional and operating arrangements from the perspective of socio-economic recovery and resilience building, as well as to assess the structure and functioning of the city economy with the aim of generating a clear understanding of the economic performance of Kharkiv in the context of vulnerability and resilience.

In response to the COVID-19 pandemic and resulting public health crisis, the national government of Ukraine and the city government of Kharkiv have taken several measures to prevent the virus's spread. The most common prevention measure has consisted of state-wide national lockdowns to varying degrees. Ukraine implemented a nationwide lockdown on 11 November, with the government later transitioning to weekend lockdowns for non-essential businesses. On 8 January, Ukraine introduced new lockdown restrictions for a period of three weeks in an effort to curb the high daily infection rate. The magnitude of the lockdowns has adversely affected trade, business, consumption and employment. Small and medium-sized enterprises (SMEs), services, the creative

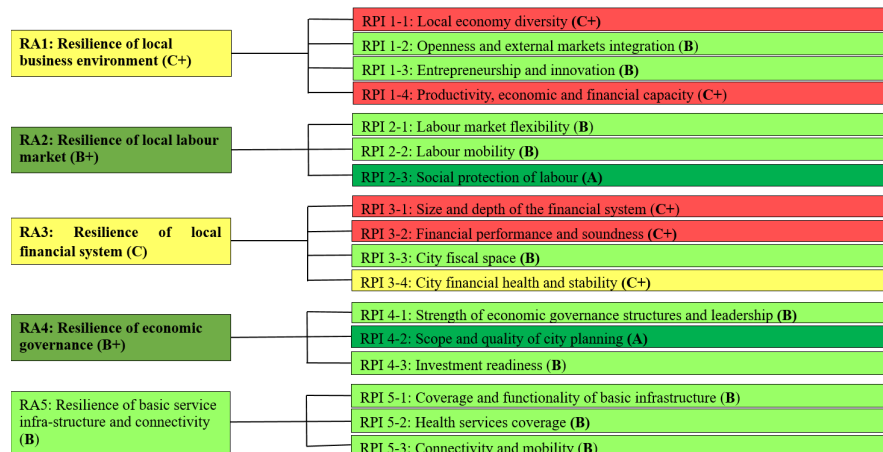
¹ Source: Data based on WHO Statistic COVID-19 dashboard collected on 22 April 2021. <https://covid19.who.int/>

industry and tourism sector are among the most heavily affected sectors by national lockdown and containment policies.

This economic resilience performance report analyses the socio-economic impact of the COVID-19 pandemic on urban economic resilience in five resilience areas (RAs) across sixteen resilience performance indicators (RPIs) designed to measure the city performance and identify areas for improvement (see Figure 2). The five resilience areas are as follows: RA1: resilience of the local business environment; RA2: resilience of the local labor market; RA3: resilience of the local financial system; RA4: resilience of economic governance; and RA5: resilience of basic services infrastructure and connectivity. This diagnostic report aims to assess the urban economic resilience performance of Kharkiv while providing insight into what leads to increased urban vulnerability, especially among most vulnerable groups, as well as to provide recommendations to the local government on recovering better from the COVID-19 pandemic, improving sustainability and preparing for future crises and emergencies. The three main objectives of this diagnostic report are as follows:

- 1) To provide a diagnostic overview of the socio-economic indicators in Kharkiv and identify urban economic resilience challenges during and after the COVID-19 pandemic.
- 2) To identify broader needs from an urban economic resilience perspective based on the multi-dimensional impact of the COVID-19 pandemic in the context of recovery plans.
- 3) To offer recommendations to be applied to support sustainable urban economic recovery during and after the COVID-19 pandemic.

Figure 2. Summary of Resilience Performance Indicators in Kharkiv



The following scale is used to assign values for Figure 1 across the five resilience areas (RA):

- A) Strong performance with clear capacity to ensure economic and financial resilience that ensures minimum impact while allowing for rapid recovery.
- B) Sound performance associated with a robust capacity but falling below the best performing cities. Such a capacity guarantees low to moderate impact and a relatively swift recovery.
- C) Average performance demonstrating the city's capacity to mitigate the crisis to achieve low to moderate levels of impact and a somewhat longer recovery period.

- D) Weak performance associated with a capacity that falls far below the best performers. At this level of capacity, a city experiences critical impact and has a long recovery period.
- E) Total lack of resilience capacity such that without substantial support from the central government, a city would experience a strong shock, potentially leading to an economic collapse and indefinite recovery period.

Program context

The objective of the project is to strengthen the capacity of local governments in 16 demand-selected cities to design, implement and monitor sustainable, resilient and inclusive COVID-19 economic and financial responses, recovery and rebuilding plans. The immediate impact of the project will be the provision of global practices from other cities which will inform the pilot cities in their activities to develop and implement immediate response and recovery plans in the context of the COVID-19 pandemic and design and implement longer-term local resilience strategies.

Ultimately, the project will contribute to planning for more resilient cities and local governments better able to withstand shocks and crises with a financial implication such as COVID-19 and other urban systemic stresses likely to reoccur in a predominantly urban world. Implementation will consider linkages with other dimensions of urban resilience of specific relevance to the different social, spatial and governance contexts of each region.

To achieve the project objective, the project has been organized into five workstreams, each linked to its own outcome.

It is important to note that because economic and financial recovery and resilience building is a complex and integrated process, and because this project is moving forward quickly in the midst of a global pandemic, project activities are not envisioned as belonging to separate silos. While the workstreams have been created to organize activities by theme to provide a structure for the overall project, project activities are expected to be carried out simultaneously alongside one another and build on outputs from other workstreams as they are produced. As such, nearly all activities will contribute to the goals of the five workstreams.

These five workstreams and objectives are as follows:

- 1. Assessment and Capacity Building.** *Key Component:* Project partners and local governments, through primary disaggregated data collection (by sex, age etc.), have an in-depth understanding of COVID-19 impact, strategies and opportunities and have the capacity to implement an urban recovery and resilience planning tool.
- 2. Stakeholder Engagement.** *Key Component:* Local project stakeholders in cooperation with the relevant central government institutions have set the vision and objectives for their local economic recovery and resilience plans and have an active role in the development and implementation of the strategies.
- 3. Economic Resilience Planning.** *Key Component:* Project partners and local governments have drafted city-specific economic recovery and resilience strategies.
- 4. Knowledge Sharing.** *Key Component:* Learnings from the project on local economic recovery and resilience building are shared between project partners, integrated into other initiatives and presented to a global audience.

5. Process Monitoring and Evaluation. *Key Component:* Internal project processes will remain on track; project outcomes will be assessed and monitoring and evaluation methods will be in place in each city strategy following project completion.

City of Kharkiv context

Kharkiv, a city located in north-eastern Ukraine, is the administrative center of the Kharkiv region, a scientific center and second most populous city in the country. The population of Kharkiv is 1.428 million inhabitants as of June 2021.

Kharkiv is a large scientific, cultural, industrial and transport center of Ukraine. The city has 60 research institutes, 41 institutions of higher education, including V.N. Karazin, included in the top 500 universities in the world, as well as the National Technical University, Kharkiv Polytechnic Institute, included in the top 1000. The city further holds eight museums, a municipal art gallery, seven state theaters and a significant number of non-state libraries, numbering 80 in total.

The industrial potential of the city is made up of enterprises of the machine-building industry, as well as the chemical, electrical power, fuel and food industries.

Kharkiv is one of the largest transport hubs in Ukraine. A number of European transport routes pass through the city, including the E40, M03 and E105 highway routes. The city possesses all major forms of transport, including an international airport, railway system and metropolitan transport system (e.g., tram, trolleybus, subway).

In spite of the pandemic, the economic and financial situation in the city of Kharkiv remains relatively stable at present.

Between January and March 2021, the budget of the Kharkiv city territorial community received UAH 3770.3 million.

The planned indicators for the 1st quarter of 2021 in terms of income were fulfilled by 105.1%, including 107.4% for budgetary income.

Compared to the same period in 2020, budget revenues increased by 12.5%, while revenues increased according to the following:

- Personal income tax by 9.6%;
- Single tax, land payments, excise tax to be credited to local budgets and real estate tax by 20%.

At the same time, the budget expenditures of the Kharkiv city territorial community for the 1st quarter of 2021 amounted to UAH 3111.2 million.

Economy

The Region of Kharkiv is one of the leading industrial regions of Ukraine and places fifth in terms of the volume of industrial products sold between January and July 2020. During the same period, industrial enterprises of the region sold industrial products (goods, services) without VAT and excise tax for UAH 94.0 billion, representing 7.1% of the entire national volume of industrial

product sales. The industry of the region comprises the production of food products, beverages and tobacco products, mechanical engineering and the supply of electricity, gas and mining, together accounting for 74.0% of the sales volumes of the region's industry.

The industrial structure of the Kharkiv region is one of the most progressive in Ukraine. Its base is made up of processing industries, the total share of which is 58.7%. There are approximately 1,000 industrial enterprises in the region, together employing more than 150 thousand people.

Informal economy

The level of the shadow economy in Ukraine in 2020 amounted to 31% of the volume of official GDP. Compared to 2019, there is a slight downward trend in the shadow economy, despite the spread of the negative consequences of the COVID-19 pandemic and a decrease in the level of real GDP.

Traditional Jobs and SMEs

Kharkiv is one of the largest industrial centers in Ukraine.

The industrial potential of the city is made up of enterprises of the machine-building industry, as well as the chemical, electric power, fuel, and food industries.

In 2019, 19,410 large, small and medium-sized enterprises operated in the city of Kharkiv, representing 77.5% of the total number of enterprises in the region. Of these, 99.9% were small and medium-sized enterprises. Of these, 844 are medium-sized enterprises (4.3% of the total number of enterprises), 18551 are small and micro-enterprises (95.6%). The city's enterprises employ 285.6 thousand people. As of July 1, 2020, 115.0 thousand individual entrepreneurs are registered in Kharkiv. The largest number of enterprises operate in the areas of wholesale and retail trade, services and industry.

Tourism

Current conditions associated with the world economic crisis and the COVID-19 situation in Ukraine, including the devaluation of the hryvnia and fall in solvency of individuals, travel companies and first victims of the crisis, have necessitated non-standard decisions processes on the part of the Ukrainian national government, including updated service standards, hotel categorization and tax holidays, practical education and training programs and communications.

At the same time, Ukraine has the potential for internal growth of the tourism sector. This is corroborated by data of the World Economic Forum in the field of tourism; over the past two years, Ukraine has risen by 10 points in the Travel and Tourism Competitiveness Index (from 88th to 78th place) and scored 3.7 points out of 7 maximum possible points. The rating is the product of 15 factors ranging from business conditions to hygiene. In 2019, CNN ranked the top 11 tourist cities in Ukraine and included the following cities: Lviv, Chernivtsi, Uman, Kiev, Pereyaslav-Khmelnytsky, Kharkiv, Chernigov, Odessa, Uzhgorod and Kamenets-Podolsky. Igor Terekhov, secretary of the Kharkiv City Council, is quoted as stating, "In connection with the COVID-19 pandemic, the influx of tourists in the world has significantly decreased, therefore, such large cities

as Kharkiv are forced to rely on business tourism, continuing to create comfortable conditions for its development”.

Vladislav Ilyin, Commercial Director of Kharkiv International Airport, noted that in 2020, the drop in passenger traffic at Kharkiv airport was less than in Ukraine as a whole (52% versus 64%, respectively). During the past year, the city has actively worked to restore destinations that existed before the coronavirus pandemic, thanks to which, during the summer months, the airport was able to operate flights to 35 destinations in 20 countries of the world.

Urban form “public spaces or green areas or public markets” and public transport.

Green spaces in the city cover an area of 15.4 thousand hectares. The urban greening rate is 50.4%, while the national average is 45%. There are 105.6 m² of green space per inhabitant of the city, with an average is 67 m². The area of public green spaces (parks, forest, alkaline, hydroparks, gardens, squares, boulevards) is 7.5 thousand hectares, amounting to 51.1 m² per inhabitant of the city.

The green area of the city is represented by:

- forests of the suburban area and forest park area;
- parks in place of forests;
- parks on the site of cemeteries and former quarters of one-story residential buildings;
- parks created anew;
- bank protection plantations along river channels;
- plantings of sanitary protection zones of industrial enterprises;
- field-protective plantations on agricultural lands of urban outskirts;
- plantings of cemeteries;
- gardens

COVID-19 impact

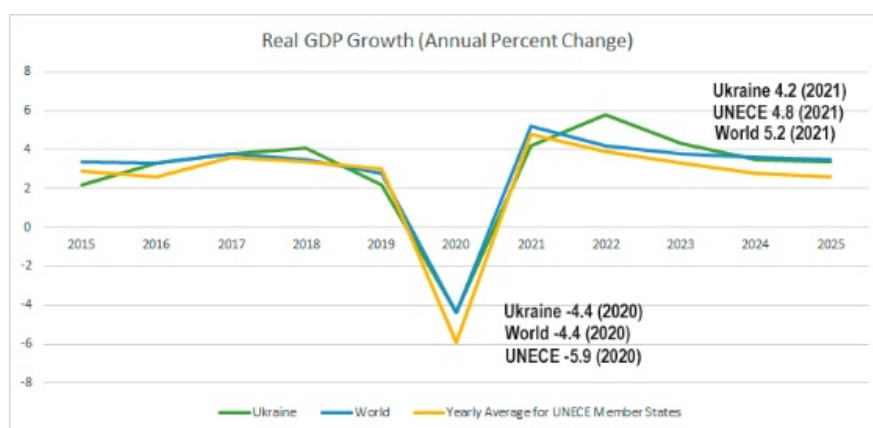
Cities and local governments are the engines of economic and social development and the local governments in charge are the arms of the government closest to the people. In this moment, the COVID-19 pandemic affects densely populated urban areas where the stoppage of work, movement control measures, and closing of international borders places strain on the accessibility of medical and social care, food and other basic services. Moreover, the closure of commercial services in urban areas in the light of the crisis leads to decreased consumption in cities, placing additional pressure on businesses and profitability needed to sustain a workforce. Decreased economic activity in turn translates into reduced aggregate demand, hampering recovery and return to pre-crisis levels of production. Therefore, pandemic response has served as an indicator of sustainability of urban services, education, healthcare, social services in cities, while providing additional perspective on the future of investments in urban infrastructure, affordable housing, transport and utility.

Considering the catastrophic consequence of the financial crisis of 2008 and other economic shocks, it is expected that the economic crisis developing in the wake of the COVID-19 will affect

the long-term investment in affordable housing and social urban infrastructure that many cities pursue. At a broader level, these developments together will almost certainly exacerbate the challenge of “urbanization without the matching quality” when cities become the main contributors to inequality worldwide. Income inequality, measured by the Gini coefficient, can rise by as much as 1.25%⁴ above pre-crisis levels five years after the crisis has ended, indicating the need to incorporate policies that address inequality in all its forms into national and sub-national strategies to address the COVID-19 pandemic.

The coronavirus pandemic has led to a historic decline in economic activity and living standards globally (see Figure 3), further exacerbating inequality and disproportionately affecting most vulnerable groups². The resulting economic losses are dramatic, with the global economy contracting by 4.4% in 2020 with projected recovery of 5.2% in 2021. The UNECE region economy contracted by 5.9% in 2020, with projections to recover with 4.8% growth in 2021. In Ukraine, the national economy contracted by 4.4% in 2020 and is poised to recover with growth of 4.2% in 2021³.

Figure 3. Real GDP growth in Ukraine (2015 to 2025 – IMF estimates).



Key crisis response and recovery measures

The urban economic and financial impact of COVID-19 have extended to Ukraine, with reductions in short run labor productivity, employment and revenues at the local scale observed in Kharkiv. Some of the key economic and financial challenges arising from COVID-19 in urban areas include the following:

Impact on labor market

² “The definition of vulnerable groups and people varies from country to country and may include: young people; senior citizens; large families with children and single parent families; victims of domestic violence; people with disabilities including mental illness, intellectual and/or physical disabilities; immigrants; refugees; Roma communities; and other minor groups”, from the UN Geneva Charter on Sustainable Housing, https://unece.org/DAM/hlm/charter/Language_versions/ENG_Geneva_UN_Charter.pdf

³ Source: IMF World Economic Outlook Database October 2020 (updated) estimates, showing the annual real GDP growth; measured by annual per cent change). <https://www.imf.org/-/media/Files/Publications/WEO/2021/Update/January/English/data/WEOJan2021update.ashx>

The coronavirus pandemic and related restrictions have negatively affected the city's labor market. As of 1 January 2021, the number of officially registered unemployed amounted to 26 thousand. However, the number of officially registered unemployed in the city in the first quarter of 2021 decreased substantially, amounting to 15.1 thousand people.

As of 1 July 2021, 6,963 people were unemployed in Kharkiv, with 5,812 people receiving assistance in connection with unemployment.

In the first quarter of 2021, 6,358 new jobs were created in the city.

An analysis of the data concerning the number of unemployed in Ukraine and Kharkiv points to an increase in the share of Kharkiv in terms of total number of unemployed registered in employment centers in Ukraine, while an increase in the share of all unemployed in 2020 amounting to 1.4%.

Impact on business environment (SMEs)

Due to the spread of COVID-19 on the territory of Ukraine, the modern consumer market of the city is experiencing certain difficulties: during the quarantine period, the work of certain enterprises in the consumer market was prohibited, which affected the volume of the city's retail turnover.

However, the latest statistics show that, despite the pandemic and the restrictions imposed, the number of small businesses in the city of Kharkiv continues to grow.

Impact on the finance environment

As of 1 April 2021, Kharkiv has received the following credit ratings:

Moody's Investors Service Inc., international credit ratings of Kharkiv, set the long-term borrower rating on the international scale in foreign and national currency at the B3 level ("stable outlook") with a base credit rating at B3;

Fitch Ratings Ltd, international credit ratings of Kharkiv, assigned the long-term foreign and local currency issuer default ratings (IDRs) a "B" rating (stable outlook); Short-term Foreign Currency IDR, "B"; Long-term City National Scale Rating, "AA-" (stable outlook); rating of the bond issue of the Kharkiv City Council for the total amount of UAH 750 million, "B"; National rating agency "IBI-Rating" long-term credit rating assigned Kharkiv an "uaA +" rating at the national level, with a forecast "in development" and an investment attractiveness rating of "invAA" (excellent investment attractiveness). The international credit ratings of Kharkiv, assigned by the rating agencies Moody's Investors Service Inc and Fitch Ratings Ltd, are on a par with the credit ratings of Ukraine.

As of 1 April 2021, 42 stock exchanges, 41 insurance organizations (companies), 49 credit unions and 8 leasing companies are registered within the territory of the city. In addition, there are 529 structural divisions of operating banking institutions in the Kharkiv region.

Economic Governance

According to the Main Directorate of the State Tax Service in the Kharkiv Region, as of 1 January 2021, 116.1 thousand entrepreneurs were registered with the territorial bodies of the State Tax Service of the city of Kharkiv.

Retail turnover of enterprises (legal entities) in Kharkiv, the main economic activity of which is retail trade, according to operational data for the first quarter of 2021, will amount to UAH 12.8 billion. The growth rate in comparable prices to the same period in 2020 is 101.0%. Sales of goods per inhabitant amounted to 8931 UAH. The demand of the population in the reporting period is fully provided with offers of the main types of consumer goods and services.

Given the specific circumstances SMEs are facing during COVID-19, Ukraine's National Government has put measures to support them. Specifically, many countries are urgently deploying measures to support SMEs and the self-employed during this severely challenging time, with a strong focus on initiatives to sustain short-term liquidity (see Box 1).

Box 1. Ukraine policy responses to COVID-19.⁴

Several measures have been introduced to support business, including: (i) Penalties for certain tax legislation violations have been canceled for the period of 1 March until the last day of the quarantine, except for activities related to excisable goods; (ii) moratorium on tax audits and inspections; (iii) the deadline for filing annual income and asset declarations has been extended to July 1, 2020; (iv) rent on land was not accrued and paid for the month of March 2020; (v) non-residential real estate owned by individuals or legal persons was not subject to real estate tax for the month of March 2020; (vi) penalties for late or incomplete payment and late filing has been abolished for the period of 1 March to 31 May 2020. Payments for the lease of state property have been either waived altogether in case of essential services for the time of quarantine, or have been halved or set at 25 percent, depending on the use of property.

In Kharkiv, an anti-crisis headquarters was created to combat the impact of the coronavirus pandemic. The headquarters included the heads of large enterprises of the city, as well as representatives of the city authorities. The funds raised by the owners of large enterprises in the city were used to purchase expensive medical equipment and support medical institutions and socially vulnerable segments of the population. In addition, more than 220 thousand food kits and 37 thousand first-aid kits with a set of essential medicines were received by Kharkiv residents during the quarantine period.

Local economic response

Since the beginning of 2021, medical workers who have contracted coronavirus have received UAH 4.424 million in material assistance from the budget of the Kharkiv territorial community.

As of 1 January 2021, Ukraine has allocated 8000 hryvnia to entrepreneurs forced to stop their work during the lockdown period. Kharkiv city authorities plan to provide additional support for

⁴ IMF Policy responses to COVID-19. <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#top>

such entrepreneurs in the amount of 2 thousand hryvnia. Thus, approximately 26,000 entrepreneurs will receive compensation from the Kharkiv City Council.

The budget of the territorial community of the city of Kharkiv will include funds for payments to entrepreneurs who have suffered from quarantine restrictions during the Pandemic.

In order to support the development of small and medium-sized businesses, the activities of the Program of Support for the Development of Entrepreneurship in Kharkiv for 2018-2022 were implemented. For the implementation of the activities of the Program in the Kharkiv municipal budget for 2020, UAH 1.9 million was provided and financed.

Work continued on further improving the website “Entrepreneurship and the consumer market of the city of Kharkiv” in addition to providing new information for entrepreneurs in the city. A separate information section has been created for businesses during quarantine, containing up-to-date official information on current restrictions for the national SME platform (a network of small and medium-sized businesses) together with a list of government support measures and answers to businesses queries.

The city of Kharkiv has huge entrepreneurial potential. Today, more than 119 thousand entrepreneurs and more than 19 thousand large, medium and small businesses work in the city, which provide jobs for more than 322 thousand employees.

Considering the important role of entrepreneurship in the socio-economic development of the city, supporting the initiatives of public associations of entrepreneurs in Kharkiv, a Coordinating Council for the Development of Entrepreneurship was created under the Kharkiv City Mayor.

The Coordinating Council is a consultative and advisory body, which was created for interaction between the business community and the city authorities, further improving the business climate, developing the business environment, and attracting investments.

For the duration of the quarantine, Kharkiv City Council stopped the accrual of rent and fines, including penalties under contracts for lease of communal property to business entities whose activities were prohibited during the quarantine period.

To stabilize the labor market, a set of measures was taken to preserve jobs. Assistance is provided to employers for partial unemployment during the quarantine period. As of 1 July 2021, the amount of aid amounted to UAH 3.6 million.

In order to support socially unprotected groups of the population, the Kharkiv City Council provides targeted financial assistance. For the first half of 2021, one-time targeted financial assistance was provided to citizens of certain privileged categories for a total amount of more than 47 million UAH (8.6 thousand people); for comparison, in the first half of 2020, assistance was provided in the amount of approximately 30 million UAH (6, 6 thousand people).

Diagnostic process

The diagnostic tool is designed to measure economic resilience of a city, including financial data, to inform actions for economic recovery and resilience building. It identifies the “what” of urban economic resilience and recovery and consists of a matrix including indicators in five resilience

areas of urban economy. The first part of the diagnostic tool has the following structure presented in the following list:

- **RA1: Resilience of the local business environment.** Analysis of the capacity of local business (including the public sector) to sustain growth and respond to demographic, technological and market conditions.
- **RA2: Resilience of the local labor market.** Analysis of the capacity of the local labor market to adjust to changes in economic activities and reallocate labor while minimizing unemployment.
- **RA3: Resilience of the local financial system.** Analysis of the capacity of the local financial system to maintain adequate and continuous supply of financial resources to economic activities with appropriate instruments.
- **RA4: Resilience of economic governance.** Analysis of the capacity of local economic governance to plan, allocate and mobilize resources and coordinate public and private economic activities.
- **RA5: Resilience of basic service infrastructure and connectivity.** Analysis of the capacity of basic service infrastructure and connectivity systems to enable and facilitate continued operation of the other four components of urban economy under stressful conditions.

The diagnostic tool uses a system of qualitative and quantitative indicators (including composite indicators and indices where necessary) in the five resilience areas discussed above, further divided into sixteen resilience performance indicators (RPI) and constituent dimensions in each resilience area. The objective of using the diagnostic tool is to help partner cities form a clearer picture of their resilience challenges using a holistic approach. The design of the diagnostic tool is presented in the following list:

The indicators, whether quantitative or qualitative, will need to be translated into performance measures graded from A (maximum contribution to resilience) through F (no contribution whatsoever). The diagnostic tool should provide city stakeholders with answers about what hinders urban economic resilience and what should and can realistically be done to improve it.

Challenges in relation to data

Challenges in collecting the necessary data include non-availability of several data sets, such as those related to the economic indicators structure of city economy, business registration statistics (city level), gross loan portfolio and RPI 5-3: *connectivity and mobility*.

The problem of access to data is related to the cultural and economic differences in the data collection process in Ukraine and, accordingly, in the city of Kharkiv. Data on the structure of the urban economy after COVID-19 will not be introduced due to the continuation of the pandemic and the absence of special statistical bodies whose task would be to introduce such statistics. The same goes for business registration statistics.

Information on the gross loan portfolio is available only by region. National Bank of Ukraine (NBU) statistics are not developed at the city level.

The lack of data on other indicators is not associated with the inability of the city to introduce the collection of such data, but rather with the lack of authority, methodologies developed and approved at the national level for maintaining these statistics by national statistics bodies and other executive authorities.

Findings of the diagnostic

Methodological notes

As part of the UNDA 13th Tranche project “Building Urban Economic Resilience during and after COVID-19”, UNCDF (United Nations Capital Development Fund) has prepared a concept note to conceptualize urban economic resilience. This work has advanced a framework for urban economic resilience that is tailored towards responding to the COVID-19 pandemic, Urban Economic Resilience: A Concept Paper for the joint UN Project “Urban economic and financial recovery and resilience building in the time of COVID-19”.

The city of Kharkiv's economic resilience performance has been prepared based on the Diagnostic and Planning Tool of UNDA 13th Tranche project on Urban Economic Recovery and Resilience.

The diagnostic has been conducted by these five indicators:

- a. Resilience of the local business environment
- b. Resilience of the local labor market
- c. Resilience of the local financial system
- d. Resilience of economic governance
- e. Resilience of basic service infrastructure and connectivity

Resilience of the local business environment

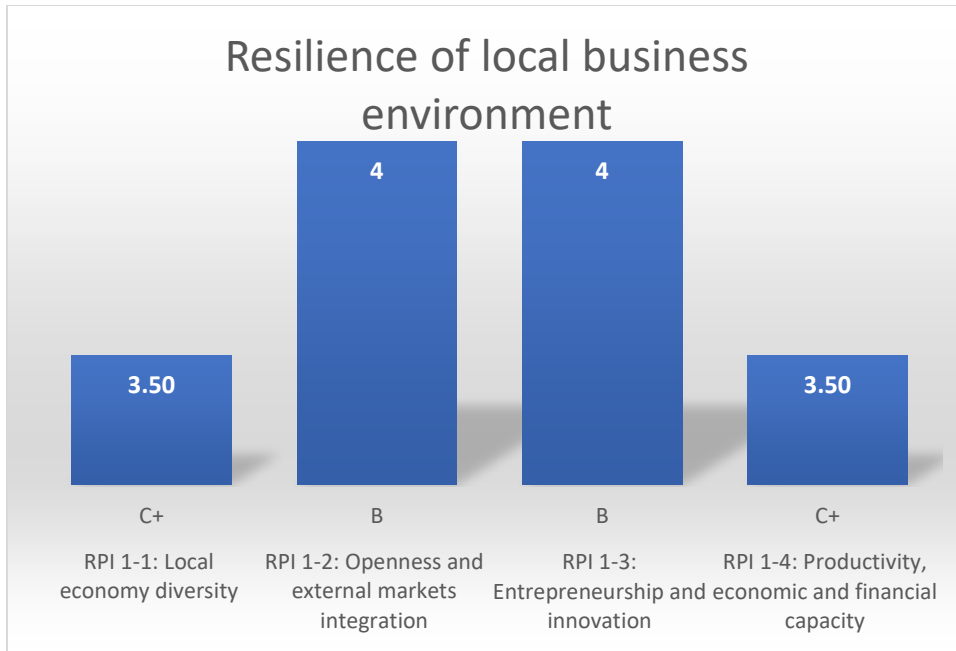
Measuring the city's product diversity index is somewhat difficult due to the lack of sufficient data. For example, data on the sectors of the urban economy is provided through the analysis of information for the entire Kharkiv region. The city of Kharkiv plays a fundamental role in the economy of the region. According to experts consulted in tandem with representatives of the Kharkiv City Council⁵, the city of Kharkiv accounts for at least 80% of all economic productivity in Kharkiv region.

Currently, it is difficult to assess the consequences of the COVID-19 pandemic for the city. Kharkiv is an economically highly developed city. Accordingly, the city's economy has a significant margin of stability. Thus, it is too early to talk about the real consequences of the impact of the COVID-19 pandemic on the city's economy.

The graph below (Graph 1) has been generated using available data; incomplete data (RPI 1-*Productivity, economic and financial capacity*) represent a difficulty in providing an accurate assessment of the resilience of the local business environment of the city.

Graph 1. Resilience of the local business environment

⁵ Kharkiv City Council <https://www.city.kharkov.ua/en/>



Based on currently available data, despite the relatively low RPI 1-1 indicator *Local economic diversity*, the urban economy is nevertheless relatively diversified. Accordingly, the city's economy remains resistant to external influences, including the consequences of the COVID-19 pandemic. The city is trying in every possible way to diversify the urban economy, with the introduction of internet technologies in various dimensions of urban life, including ensuring security, development and operation of transport, providing administrative services and maintaining a favorable environmental situation forming key tasks of the city. In 2020, the first municipal start-up center "Startup Kharkiv" was launched. In order to achieve a higher degree of development in this direction, the city would benefit substantially from increased support (see Table 2).

RPI 1-2, *Openness and external markets integration* reflects the openness and integration with external markets, further confirming the sufficient potential of the city to cope with the consequences of the crisis brought on by the COVID-19 pandemic (Table 3).

As expected, the information and data required to define entrepreneurship innovation activity in the city is highly limited. Nevertheless, based on a survey of city officials and business representatives, the level of business development and innovative technologies in the city is quite high, as can be seen in RPI 1-3, *Entrepreneurship and innovation*, yielding a score of "B" (Table 4).

Currently, a new program aimed at expanding opportunities for entrepreneurs to develop their activities in the context of the COVID-19 pandemic has been launched in Ukraine. At its core, the program foresees the provision of affordable bank loans to entrepreneurs in Ukraine. Considering its degree of economic development, the program will undoubtedly have a positive impact on further development of entrepreneurship in Kharkiv. At the present time, it is impossible to determine significant changes in the number of enterprises liquidated or significantly affected,

resulting in a decrease in productivity as a result of the COVID-19 pandemic. Nevertheless, the diagnostic RPI 1-3 (“B”) demonstrates that the city retains fairly high potential for sustainability.

RPI 1-1: Local economy diversity		C+
City product diversity	0,27	C
Informality	0,03	B
Public economy strength	6,60%	D
COVID-19 impact concentration	0	A

Table 2. RPI 1-1: Local economy diversity

Analysis of the city's product diversity was carried out using data provided by the Kharkiv City Council. It should be noted that there is no data exclusively available for the city, with information provided pertaining instead to the entire Kharkiv region. According to the assumptions of representatives of the Kharkiv City Council, the indicators of the city of Kharkiv coincide to a degree of approximately 80% with indicators for the region as a whole. Analysis and corresponding conclusions are thus made taking this observation as granted.

There exists no official data on the indicators of the informal or “shadow” economy; nevertheless, the assessment of employment in the informal sector is based on the results of a study of the state of the shadow economy in Ukraine conducted by Ernst & Young with the support of Mastercard within the framework of the concluded Memorandum of Cooperation with the Ministry of Economic Development, Trade and Rural Affairs Economy of Ukraine, the National Bank of Ukraine and the State Statistics Service of Ukraine. According to these studies, the shadow economy accounts for approximately 25% of the Ukrainian economy.⁶

RPI 1-2: Openness and external markets integration		B
Local industrial/employment quotient	0,04	C
Local economy openness (export/import)	106,96%	A

⁶ State Statistics Service of Ukraine. <http://www.ukrstat.gov.ua/>.

Table 3. RPI 1-2: Openness and external markets integration

The calculations were made taking into account available data for the region together with national indicators. Data on the indicators of the region are provided by the Kharkiv City Council, while national indicators are publicly available on the official website of the State Statistics Service of Ukraine. It should be noted that the obtained indicators indicate the balance of the city's economy in terms of production and domestic firms, as well as the fact that the city's economy to a large extent reflects that of the entire country. It follows that impact of the COVID-19 pandemic will yield similar consequences both for the city and the country as a whole.

RPI 1-3: Entrepreneurship and innovation		B
New business creation		B
Business digitization rate	-	B
Digital access	-	B
State of ecosystem for innovation support	B - Large ecosystem for innovation support with different financial and technical facilities mostly operational for supporting innovations at different stages of lifecycle	C

Table 4. RPI 1-3: Entrepreneurship and innovation

RPI 1-4, *Productivity, economic and financial capacity*. Unfortunately, data on these indicators are not readily available. As such, assessment was carried out using data made available on the website of the Statistics Office in the Kharkiv region in addition to information provided by representatives of the Kharkiv City Council. This information in turn comprises measures taken in the city to develop innovative technologies and simplify access to public and municipal services for entrepreneurs (Table 5).

RPI 1-4: Productivity, economic and financial capacity		C+
Business productivity	-	C
Business access to electricity	-	B
Access to affordable finance	-	D
COVID-19 business failure rate	-	B

Table 5. RPI 1-4: Productivity, economic and financial capacity.

Due to data limitations, the assessment of business performance is based on the use of a rating scale. As mentioned above, the city of Kharkiv is one of the main economic centers of both the Kharkiv region and the country as a whole. Accordingly, it can be said that business productivity in the city is approximately at the same level as that in all of Ukraine.

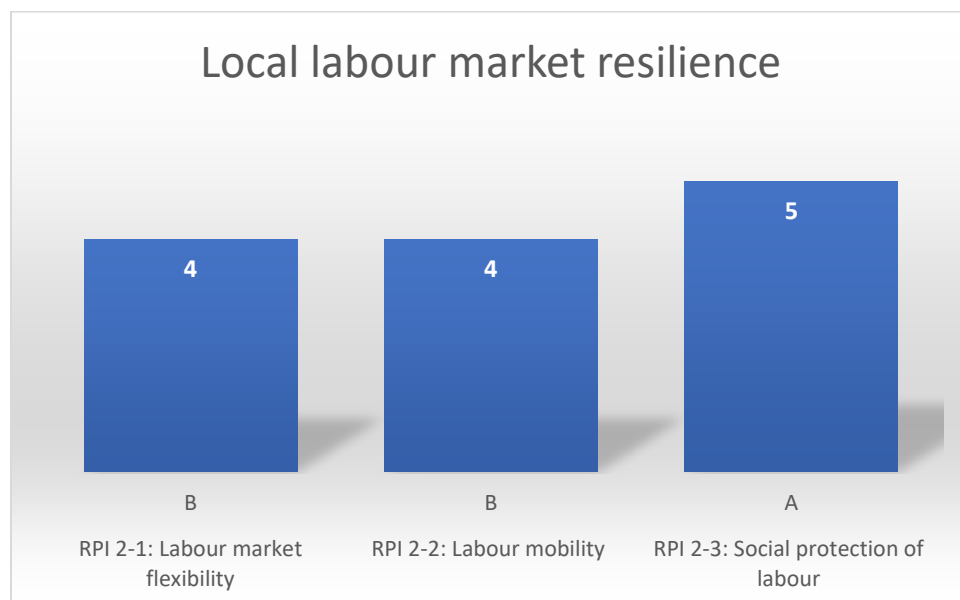
Concerning power connectivity, there are no problems detected with access to electricity in the city. Electricity interruptions that periodically occur in the city are associated with technical breakdowns, which are quickly eliminated. Internet access in the city is generally excellent,

whereas problems in mobile communications are rare and short-lived. These conclusions are based on information available on the website of JSC "Kharkiv City Electric Networks"⁷.

Currently, the city is implementing a program for providing affordable loans for entrepreneurs. Interest rates, depending on the project in question, vary from 3-7% per annum in national currency (UAH). Information about the implementation of the program is publicly available on the website of the Ministry of Finance of Ukraine and the Entrepreneurship Development Fund, the operator of the program.

Resilience of the local labor market

Analysis of the labor market remains a highly complex task (see Graph 2). As the most important element of the market economy, the labor market is a system of social relations designed to ensure the normal reproduction and effective use of the "labor force". Global experience shows that the labor market cannot exist outside of a competitive economy based on the fundamental principles of private property and democratic public institutions.



Graph 2. Local labor market resilience.

The diagnostic results for sustainability yielded results qualifying the performance of the city as above average, indicating the sufficient ability of the city to mitigate the consequences of the COVID-19 pandemic and achieve stabilization in the area of the sustainability of the labor market.

RPI 2-1: *Labor market flexibility* (Table 6), received a “B” rating, designating average capacity of the city to mitigate the crisis sufficiently to achieve low to moderate levels of impact and a somewhat longer recovery period.

RPI 2-1: Labor market flexibility		B
Employment diversity	0,18	B

⁷ JSC “Kharkiv City Electric Network” <http://tec5.kharkov.ua/eng/index.php>

Population/Employment Ratio	390,79%	C
COVID-19 induced unemployment	-	B

Table 6. RPI 2-1: Labour market flexibility.

The *Employment Diversity Indicator* received a “B” score due to low sectoral concentration of the labor force in Kharkiv. More precisely, the city does not have a high concentration of labor in any specific sectors of the economy.

Population/Employment Ratio Indicator. The assessment of this indicator was made considering the fact that the level of employment in the city is approximately equal to the level of employment in the country as a whole.

COVID-19 Unemployment Indicator. The coronavirus pandemic and related restrictions have negatively affected the city's labor market. As reported in the City Council, the unemployment rate as of 1 October 2020 compared to the same date of the previous year increased from 0.51% to 1.39%. At the same time, unemployment caused by COVID-19 is at a moderate level.

RPI 2-2, *Labor mobility.* To assess this indicator, it is necessary to calculate the Shorrocks index. However, the data required for the appropriate calculation are not available at the city level and therefore this specific measurement cannot be obtained (Table 7).

However, based on publicly available information, it can be concluded that the workforce in the city is quite mobile, especially during the crisis caused by the global pandemic, when residents of the city had to retrain, change their profession, or meet labor needs.

Availability of programs for (re-) training of employees. In Kharkiv, (re-)training programs at the city level carry high potential in terms of the number of trainees and cover a wide range of professions in most sectors.

Vocational training is one type of social service provided by the employment service to the population. Persons without a profession are offered vocational training, the unemployed who have a profession but cannot find a job are offered retraining, and those who need to improve their knowledge and skills are offered advanced training. Professional training is carried out according to special programs that are created on the basis of standard planning programs approved by the Ministry of Education and Science of Ukraine and the Ministry of Social Policy of Ukraine.

In order to ensure the competitiveness of the unemployed in the labor market, a program for improving the qualifications of the unemployed is widely used.

Geographic mobility of labor resources. This indicator received a score of “B”. Workers tend to travel short distances and transport is highly available and affordable. Travel time to and from work using public transport is (on average) 25 minutes.

Share of the household budget spent on rental housing. Considering the fact that the average cost of renting housing in the city is high and accounts for more than 26% of household income, this indicator received a “D” score.

RPI 2-2: Labour mobility		B
Occupational labour mobility	0,00%	B
Availability of worker (re)training programmes	A - (Re)training programmes at the city level have a high capacity (in terms of trainees) and cover a very broad range of occupations in most sectors	A
Geographic labour mobility	B	B
Proportion of a household's budget spent on rental housing	26,50%	D

Table 7. RPI 2-2: Labor mobility

Unemployment RPI 2-3, *Social protection of labour* (see Table 8). As reported by the City Council, the unemployment rate as of 1 October 2020 compared to the same date of the previous year increased from 0.51% to 1.39%. At the same time, the unemployment rate in the city remains low, below 5%.

Unemployed receiving unemployment benefits received a “B” score due to the fact that the majority (over 84%) of officially registered unemployed persons are covered by the unemployment benefit system.

Informal employment rate. There are no official data on the level of informal employment. The data presented in this report for the Kharkiv region is presented in accordance with the report "Undeclared work in Ukraine: nature, scope and ways of overcoming", prepared by the EU-ILO Project "Strengthening Labor Administration to Improve Working Conditions and Overcome Undeclared Work"⁸. Considering that Kharkiv is the main urban conglomerate in the region, the data for the region are applicable for the city as well. According to these data, the level of informal employment in the city is low at 3.8%.

City expenditure on social protection. The city of Kharkiv expenditure on social protection paid as city benefits in addition to other existing social protection schemes in relation to the budget is more than 29%. Accordingly, this indicator is assessed with an “A” score.

RPI 2-3: Social protection of labour		A
Unemployment rate	0,50%	A
Unemployed receiving unemployment benefits	84,78%	B
Informal employment rate	3,80%	A
City expenditure on social protection	29,28%	A

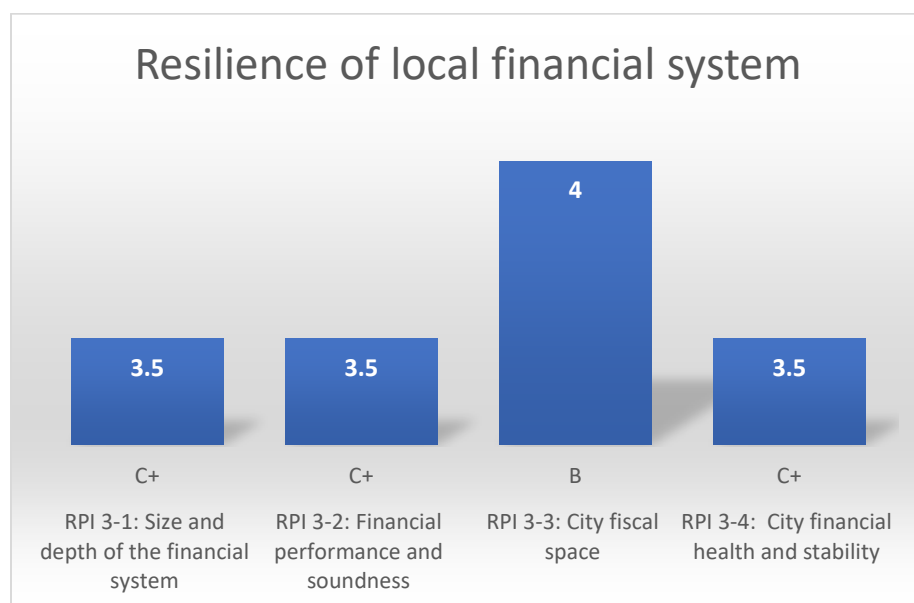
⁸ EU-ILO Project “Strengthening Labor Administration to Improve Working Conditions and Overcome Undeclared Work.” [https://www.ilo.org/budapest/what-we-do/projects/enhancing-labadmin-ukraine/WCMS_645249/lang--en/index.htm](https://www.ilo.org/budapest/what-we-do/projects/enhancing-labadmin-ukraine/WCMS_645249/lang-en/index.htm)

Table 8. RPI 2-3: Social protection of labour

Resilience of the financial system

The stability of the financial system determines the ability of the city to adapt to crisis situations requiring the appropriate allocation of financial resources needed to resolve them. If local funding sources promptly allocate their resources, then the crisis situation will stabilize and a process of rapid recovery is initiated.

When assessing the local sustainability of the financial system, four main factors are taken into account: the size and depth of the financial system, financial efficiency and reliability, the city's budget space, and the financial well-being and stability of the city, (see Graph 3).



Graph 3. Result of diagnosis the stability of the financial system of the city of Kharkiv

The city's results on financial sustainability point to some weaknesses (see Table 9). Accordingly, this points to economic difficulties faced by the city requiring transformative solutions to improve its financial system.

RPI 3-1: Size and depth of the financial system		C+
City quotient of financial system	0.22	D
Proportion of the population with a bank account	62.89%	B
Percentage of adult population with a registered Digital Finance account	62.90%	B
Market share of financial institutions offering affordable finance	No data available	C

Table 9. RPI 3-1: Size and depth of the financial system.

City quotient of the financial system, RPI 3-2 indicator (“Financial Performance and Reliability”, see Table 10) received a “C+” score with a quotient value of 0.2222 < 1, indicating that the financial system of the city is sufficient enough to meet the needs of the population and progressively build improved sustainability.

Proportion of the population with a bank account received a “B” score. This estimate is based on a result of 62.89%, which indicates the imperfect position of the adult population's accessibility to financial transactions; however, it nevertheless allows a significant part of the adult population to take advantage of the city's financial system, for which access to a bank account is considered a minimum requirement.

Percentage of the adult population with a registered digital financial account also received a “B” score, implying a higher degree of involvement of the adult population in the financial sector of the city of Kharkiv.

Market share of financial institutions offering affordable financing was estimated on the basis of qualitative data obtained from the Kharkiv City Council. The “A” score is attributed to the significant market share: the sector of financing projects and innovative enterprises is represented by a large number of different investors. In addition, Kharkiv is the one of the largest in Ukraine in terms of the number of banking institutions.

RPI 3-2: Financial performance and soundness		C+
Interest rate spreads	No data available	C
Nonperforming loans rate	No data available	C
Sectoral distribution of loans	26.94%	C
Nonperforming loans rate and loans restructured under COVID-19	No data available	D

Table 10. RPI 3-2: Financial performance and soundness.

The indicator *Interest rate spreads* received a qualitative grade “C”, since the spreads of interest rates in the city are not at a high level, while not falling below the average. To assign a more accurate estimate, more data for both the city and country is needed.

The indicator *Share of problem loans* earned a score of “C”. According to the NBU: The share of non-performing loans (NPL) in Ukraine was 41% at the beginning of 2021.

The share of non-performing loans has been gradually decreasing since 2018. In 2020, state-owned banks carried out large-scale work: over the year, they wrote off 30.6 billion in UAH and 3.1 billion in USD. This allowed them to reduce the share of non-performing loans from 63.5% to 57.4%. As a result, the total share of NPL in the banking sector decreased by 7.4 percentage points in 2020.

Today, all non-performing loans are recognized by bank with the level of their coverage by reserves is constantly growing, amounting to approximately 98% as of 2021. Therefore, non-performing loans do not put pressure on the profitability of banks and their capital.

However, most of them are still a burden for the banking sector, especially for state-owned banks, in which more than 70% of the sector's NPL is concentrated (about 42% falls on JSC CB PRIVATBANK).

The high share of NPL is the result of the credit expansion of past years, when the standards for assessing the solvency of borrowers were low, and the rights of lenders were insufficiently protected. Another good reason is the practice of lending to related persons who stopped servicing loans during the crisis.

The NBU notes that banks are intensively clearing balance sheets: non-performing loans should be restructured, sold or written off.

The indicator *Sectoral distribution of loans*, amounting to 26.94%, received a score of “C”, as the percentage is within the limits which are characterized by a fairly significant diversification of the bank's loan portfolio. However, the indicator is not low enough to assert the high financial efficiency and reliability of the bank loan portfolio of the city’s financial institutions.

The indicator *Share of problem loans and the number of loans restructured in connection with COVID-19* cannot be estimated due to the lack of data at the city and national levels.

Additionally, with regard to the lack of information on problem loans and their restructuring during the COVID-19 pandemic, it should be noted that such statistics are available only for the whole banking sector of Ukraine or according to the activities of each individual banking institution⁹. At the same time, the available data indicate that some of these loans were the result of active lending in the pre-crisis years preceding 2008 and 2014 and today their share in the total loan portfolio of banks is constantly decreasing.

RPI 3-3: City fiscal space		B
City revenue diversity	1,20%	A
Share of income inelastic own source revenues	63,21%	A
Financial flexibility	No data available	C
Fiscal flexibility	B - Strong fiscal capacity: the city has the legal capacity to set independently the rates for most taxes and fees assigned to it and introduce new taxes	C

Table 11. RPI 3-3: City fiscal space.

RPI 3-3 indicator *City fiscal space* (Table 11) received a “B” score. The *City revenue diversity Indicator* received an “A” score, as the coefficient is only 1.2%. This is a strong result indicative of a highly diversified income structure of the city. Moreover, this means that local governments can rely on different sources of funding. Therefore, in this area, the stability of the financial system is much higher than in previous cases.

⁹ National Bank of Ukraine, Loan Portfolio Quality (NPLs). Available at <https://bank.gov.ua/en/stability/npl>.

The indicator *Share of income inelastic own source revenues* equally received a high rating of “A” at 63.21%. This means that inelasticity is closer to 100 (or 1), that is, despite changes in economic activity, incomes of this type, e.g., real estate tax, remain at the same level as before COVID-19.

The indicator *Financial flexibility* was assessed on the basis of qualitative data received from the Kharkiv City Council. The “C” score is due to a moderate degree of financial flexibility. However, more accurate quantitative data could provide an opportunity to provide a more accurate assessment of the financial flexibility of the city of Kharkiv.

The *Fiscal Flexibility* indicator received a “C” score despite a qualitative “B” score. This is due to the fact that local governments are not always able to set their tax rate and tax base. However, the high assessment is justified by the ability of the city of Kharkiv to respond to the economic downturn and compensate for it using the resources obtained with the help of tax autonomy.

RPI 3-3 indicator *City fiscal space* (Table 12) received a “B”.

RPI 3-4: City financial health and stability		C+
Share of the local financial market	No data available	F
City credit rating	AAA	A
City audit performance	A - Unqualified audit opinion over the last three years	A
Change in total city revenues under COVID-19	-10.77%	B

Table 12. RPI 3-4: City financial health and stability.

The city's *Share of the local financial market* was assigned an “F” value due to the absence of municipal financial institutions (e.g., municipal banks) or subnational associations. Unfortunately, in this area, part of the financial system of the city of Kharkiv is completely dependent on national institutions (for example, the NBU) and the indicators set by these institutions.

The indicator *City credit rating* received the highest rating and quality indicator (“A”). This area is well developed in Kharkiv and implies excellent potential of the city for borrowing on more favorable terms. It also assumes greater opportunity on the part of the city to obtain an adequate loan to resolve financial crises and guarantee support to the financial system more generally.

The indicator *City audit performance* received an “A” grade in consideration of the consecutive completion of the audit report in the city of Kharkiv over the past three years without reservation.

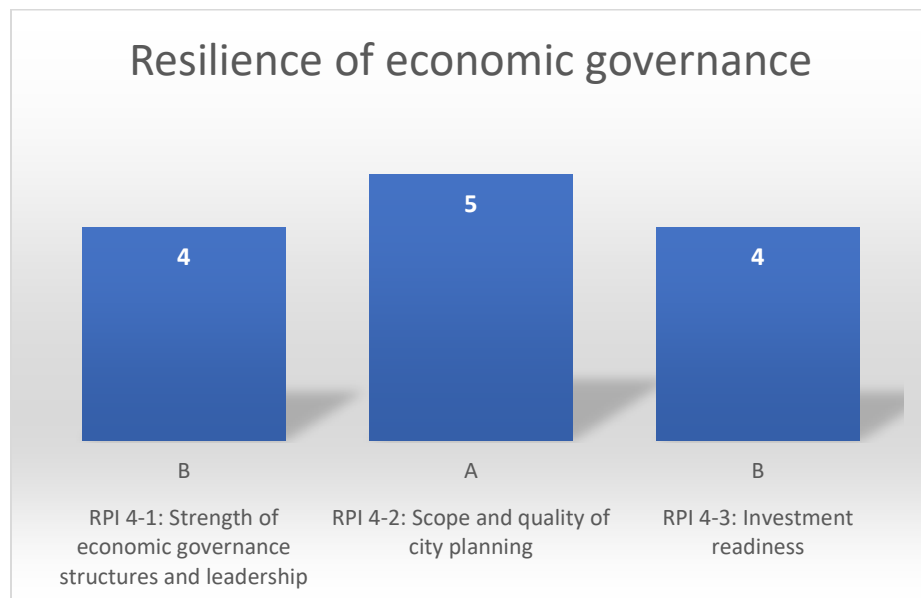
The indicator *Impact of COVID-19 on the financial well-being and stability of the city* was rated “B” as the city's revenues decreased by 10.77%. This indicates a slight decrease in the income of the city of Kharkiv while demonstrating that the preparedness of the city for a pandemic is at the sufficient level.

Resilience of Economic Governance

The sustainability of economic management is assessed by the willingness of city bodies and

management systems to support the mechanisms of the city economy during crisis situations at an effective and viable level.

The basis for successful and effective economic management includes good governance structures, quality level urban planning and investment readiness.



Graph 4. Resilience of Economic Governance

RPI 4-1 indicator *Strength of economic governance structures and leadership* (Table 13) received a “B”, with *Inclusiveness of economic governance structures* receiving an “A” rating in view of the regular participation of various non-state stakeholders in the work of governance structures within the city's economy. This speaks of the sustainability of the economic governance of the city of Kharkiv under the view that higher diversity of stakeholders leads to more informed decisions and better overall preparedness of the system for a crisis such as COVID-19.

The indicator *Public participation in economic management processes* received a “D” score based on the fact that any decisions made on economic issues are made in accordance with normative procedures requiring the city council to hold public hearings that provide the city governance with respective comments on economic issues, following which a decision can be made.

The indicator *Access to local public information on economic issues* received a “D” score; despite availability of public information covering the most pressing economic issues on a regular basis, there is no strong social trust to accompany this information; as a result its availability does not play an important role due to the irregular use of this information during economic decision-making.

Nevertheless, the indicator is quite subjective, rendering assessment difficult. It should be noted that, in principle, in Ukraine, the majority of citizens do not know the methods of financial planning, including their own income, which leads to the fact that information that is in a public place is not always of interest to average citizens.

At the same time, recent studies of the electoral sentiments of Kharkiv residents indicate the presence of trust in local authorities and support for the current acting mayor, which is undoubtedly the best assessment of the correctness of the city government's policy to ensure the city's life¹⁰.

RPI 4-1: Strength of economic governance structures and leadership		B
Inclusiveness of economic governance	A - A variety of nongovernment stakeholders regularly participate in city economic governance structures, making up 40-50% of the membership	A
Public participation in economic governance	A - High degree of public involvement (via regular consultations, meetings, forums), public feedback is regularly sought and incorporated	D
Access to public information on economic issues	B - Information covers most relevant economic issues, is of high quality and provided regularly	D

Table 13. RPI 4-1: Strength of economic governance structure and leadership.

RPI 4-2 indicator *Scope and quality of city planning* (Table 14) received a “A” score; the indicator *Comprehensiveness of city planning system* received an “A” in consideration of extant comprehensive plans at the strategic, mid-term and annual levels demonstrating a high degree of interconnectedness. Accordingly, the reliability of the planning system and the sustainability of urban planning are ensured in the city of Kharkiv.

The indicator *Integration of crisis management provisions in planning and budgeting* likewise received an “A” as Kharkiv demonstrated taking a leading stance in the fight against the COVID-19 pandemic among the cities of Ukraine. In the city, there is a continuous provision of utilities and the provision of resources necessary to support the population.

The *Application of vulnerability assessment methodology* indicator received a score of “A” due to the city’s reliable vulnerability assessment methodology, which is carried out regularly to identify weaknesses and potential losses. In the context of the COVID-19 pandemic, the city authorities considered all areas that were affected. In addition, previous years of successful development of the city's sustainability were also factored into the assessment of this indicator.

The indicator *Extent of access and application of digital technologies* received a score “A” owing to extensive experience working with big data on the part of municipal authorities, city services and enterprises of Kharkiv. Relevant actors utilize big data to plan infrastructure and provide services to citizens. As such, the city's technological development continues to progress rapidly and has remained a colossal engine of progress throughout the course of the pandemic.

RPI 4-2: Scope and quality of city planning		A
Comprehensiveness of city planning systems	A - Comprehensive plans at three levels (strategic, medium-term and annual) exist and demonstrate a high degree of interconnectedness	A
Integration of crisis management provisions in planning and budgeting	A - Crises management provisions are comprehensive and systematically mainstreamed in	A

¹⁰ Active Group Sociological and Marketing Research, Kharkiv. Available at <https://activegroup.com.ua/2021/07/20/active-group-doslidila-elektoralni-upodobannya-meshkanciv-mista-xarkiv/>

	plans at all levels (strategic, medium-term and annual)	
Application of vulnerability assessment methodology	A - Robust vulnerability assessment methodology exists; vulnerability assessments take place regularly; relevant actions incorporated in plans at all levels	A
Extent of access and application of digital technologies	A - IoT and big data analytics are advanced and most of the city services use them regularly	A

Table 14. RPI 4-2: Scope and quality of city planning.

RPI 4-3 indicator *Investment readiness* (Table 15) received a “B” *Strategic planning and ensuring the stress resilience proofing of investment projects* was rated “A” because all investment projects are based on the approved city development plan, which takes into account external financing including sustainability issues.

Access to public land received a “C” score because the city does have full autonomy in making decisions about the exploitation of land resources. Except decisions that are made on the national level regarding exploitation of governmentally owned land resources.

Intensity of the regulatory/administrative burden received a “B” score owing to the city’s relatively low degree of business regulation. Namely, there is a favorable investment environment for new participants in the private sector and new business enterprises in the city. Such an assessment is further due to the rather quick registration procedure for business entities and enterprises.

Quality of an investment-enabling environment also received a “B” score as Kharkiv has a significant amount of data and financing mechanisms rendering investment in urban enterprises more efficient while further contributing to the effective development of investment projects.

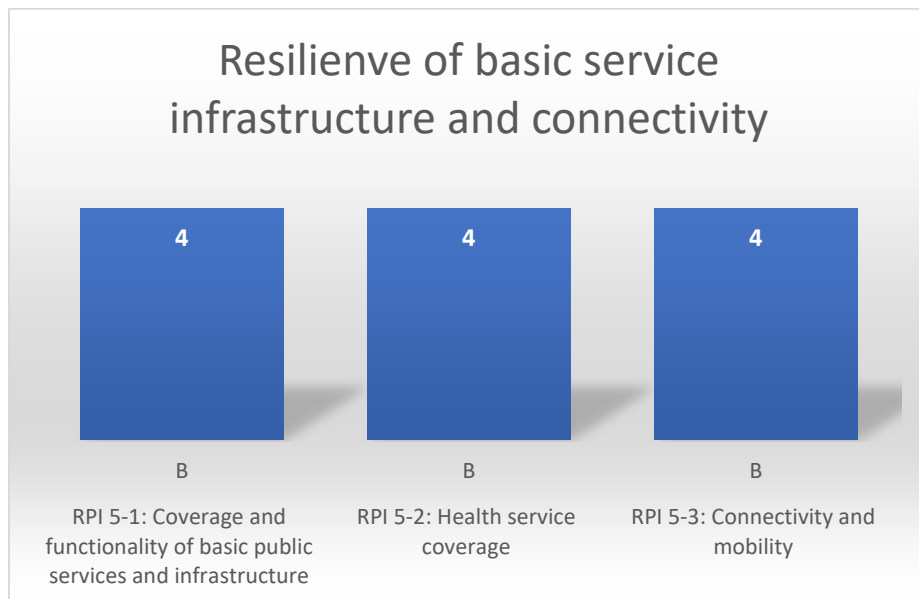
RPI 4-3: Investment readiness		B
Strategic planning and resilience proofing of investment projects	A - All investment projects are derived from the approved medium-term development plan and CIP, make provision for external finance when appropriate, and have project profiles that comprehensively address resilience issues	A
Access to public land	C - City has a somewhat limited autonomy to decide over the use and (re)allocation of land resources (approval of higher government required for some actions); an average percentage of vacant/unutilized public land	C
Intensity of regulation/administrative burden	B - Light intensity of business regulation, relatively quick and easy business registration procedures	B
Quality of investment-enabling environment	B - A large amount of investment data (including some investment profiles) and a number of financial and nonfinancial facilities to facilitate investment	B

Table 15. RPI 4-3: Investment readiness.

3.5. Systemic resilience of basic services and connectivity

Strong resilience of the system of basic services and connectivity is a prerequisite for the operability of the city as a whole and comprises components that are critical for the population:

connectivity and mobility, coverage by the healthcare system, coverage and functionality of basic infrastructure and systems for providing basic services (see Graph 5).



Graph 5. Diagnostic results of resilience of basic services and connectivity.

City development is considered resilient if the current needs of the residents are met.

RPI 5-1 indicator *Coverage and functionality of basic public services and infrastructure* (Table 16) received a “B”. The results of diagnostics of the above area of the city's resilience showed a relatively low level of performance, indicating that the city is influenced by certain factors requiring a sufficiently long period to recover and raise the level of indicators in this area of sustainability.

Public open space per 1000 inhabitants received an “A” score due to the fact that there are almost 7 acres of public space per 1000 inhabitants in Kharkiv.

In light of the experience of the COVID-19 pandemic, such a high level of accessibility of public open space is of great importance for dealing with quarantine restrictions on the part of the population and provides opportunities for city events.

Likewise, *Average number and length of interruptions per customer per year in the electricity network* received an “A”, indicating that interruptions in the operation of the power supply network in the city are rare and generally short-lived. This, in turn, gives the city the opportunity to ensure the uninterrupted operation of industries, workshops, civilian facilities, etc.

Percentage of the population with access to water and sanitation services. According to the updated information of the General Director of KP Vodokanal, as of 1 January 2021, the population of the city of Kharkiv is almost completely provided with the service of centralized water supply and sanitation, namely:

- centralized water supply services – 1,225,429 people

- services of centralized sewerage – 1,167,039 people.

Further, the city holds alternative sources of water supply (e.g., wells) and water disposal (local treatment facilities), which are used by sectors of the city population, yielding a score of “C”.

It should be noted that the city is taking measures to increase the level of this indicator, in particular:

Kharkiv Vodokanal was developed jointly with the Kharkiv National University of Municipal Economy named after A.N. Beketov and the Kharkiv National University of Construction and Architecture. The Development Program of the KP for 2015-2026 (“Kharkiv Vodokanal”)¹¹ was approved by the decision of the 36th session of the Kharkiv City Council of the 6th Convocation. The program defines the strategic objectives for the development of the water supply and sewerage system in Kharkiv while providing the technical re-equipment of the enterprise using innovative developments based on the introduction of energy-saving technologies and energy-efficient equipment. Further, KP Kharkiv Vodokanal, at the expense of credit funds of the International Bank for Reconstruction and Development (IBRD), has launched an investment project “Improvement of the sludge management system of sewage treatment facilities in Kharkiv”.

Percentage of the population receiving the service of regular collection of municipal solid waste. The population of the city has access to the disposal of solid household waste. Urban waste is transported to the Dergachev and Rogan landfills. Moreover, the Dergach solid waste landfill became the first in Ukraine to use the technology for determining critically high temperatures that can cause spontaneous combustion of waste. Within the framework of cooperation with the International Bank for Reconstruction and Development on the basis of the Dergachevsky landfill, the investment project "New construction of a complex for the processing of solid household waste with a system for collecting, utilizing landfill gas and generating electricity in Dergachi, Kharkiv region" is being carried out. As of 1 July 2021, the work envisaged for the project is 90% completed. In the third quarter of 2021, it is planned to begin the commissioning of the project.

At the same time, the volume of waste disposal during quarantine increased, due, among other issues, to increased disposal of medical waste from hospitals. According to the UN Environment Program, one hospital bed equals approximately 500 grams of medical waste. Even before the pandemic, in 2017, on average, 380-400 thousand tons of medical waste were produced in Ukraine per year (according to the All-Ukrainian Ecological League). In the context of the pandemic, the volume of medical waste has greatly increased.

RPI 5-1: Coverage and functionality of basic public services and infrastructure		B
Public open space per 1,000 inhabitants	8236,00	A
Average number and length of interruptions per customer per year in the electricity network.	1774,39	A

¹¹ Development Program of the KP for 2015-2026, “Kharkiv Vodokanal”.
https://vodokanal.kharkov.ua/content/invest_programma

Percentage of population with access to water and sanitation services	0,82	C
Percentage of population with regular municipal solid waste collection	0,68	D

Table 16. RPI 5-1: Coverage and functionality of basic public services and infrastructure.

RPI 5-2 indicator *Health service coverage* (Table 17) received a “B” based on the city quotient for health workers per 10,000 inhabitants. The density of medical workers (doctors, nurses and midwives) in the city indicates sufficient access of the population to qualified medical personnel. Considering that the indicator for the city approximately corresponds to the level of the indicator for the country, the indicator received a score of “C”.

City quotient for hospital beds per 10,000 inhabitants. This indicator, like the previous one, has a score of “C”, since the relative number of hospital beds at the city level approximately corresponds to the level in the country. Currently, amid a subsequent wave of the COVID-19 pandemic, the number of hospital beds is continuously increasing, including those with oxygen supplied to them.

City Expenditure on Health. The city's health expenditures are significant in relation to the local budget and amount to more than 15%, yielding an “A” rating. This level of provision makes it possible to provide necessary medical care, including to patients diagnosed with COVID-19.

3.5.1.2. Diagnostic Results for RPI 5-2: Health System Coverage

RPI 5-2: Health service coverage		B
City quotient for health workers per 10,000 population	14,78	C
City quotient for hospital beds per 10,000 population	6,44	C
City expenditure on health	0,15	A

Table 17. RPI 5-2: Health service coverage.

RPI 5-3, *Connectivity and mobility* (Table 18), received a “B”.

Continuity of telephone and Internet services. There are practically no outages of landline telephone communications in the city. Data for mobile operators is not available.

Internet interruptions are possible due to technical problems with internet providers (fixed line) or with mobile operators. However, in Kharkiv, they are insignificant and, in general, interruptions of telephone and internet services in the city are rare and short lasting. Thus, this indicator has a score of “A”.

Average commuting travel time disaggregated for the key modes of transportation. The average travel time to and from work in the city is about 25 minutes, which demonstrates the high ability of workers to reach their workplace by public transport. The short duration of travel to work determined the assessment of this indicator with a score of “A”.

Total coverage by all major modes of public transport. The coverage of the public transport network (route length) is 1410.1 km. All main streets are covered with transport routes i.e., most

of the entire road infrastructure except for small streets and auxiliary roads where public transport does not operate, due to the absence of the need to organize its operations there.

Walking and cycling accessibility. The indicator has not been assessed. No relevant data available. It can be added that the total length of the city's road network is 1680.71 km. The total length of bike paths in the city is 24.8 km.

Almost all streets of the city of Kharkiv, including the intra-quarter ones, are equipped with pedestrian sidewalks on both sides. In addition, the city has 611.7 km of paved pedestrian paths.

3.5.1.3. Diagnostic results for RPI 5-3: Connectivity and mobility

RPI 5-3: Connectivity and mobility		B
Continuity of telephone and Internet operations	0,00	A
Average commuting travel time disaggregated for the key modes of transportation	25	A
Total coverage of all superior modes of public transport	No data available	D
Walkability and cyclability	No data available	-

Table 18. RPI 5-3: Connectivity and mobility.

3. Conclusions and recommendations

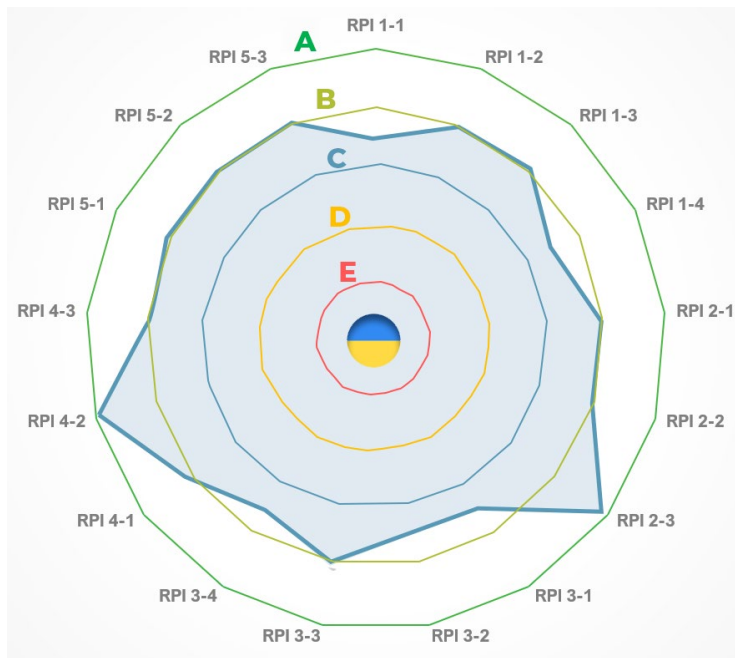


Figure 4. Kharkiv resilience performance

The collection of data was accompanied by difficulties in terms of access to information. In Kharkiv, as in Ukraine as a whole, there is a lack or deficiency of statistical data on some indicators, both complicating the diagnosis and generating less accurate results. However, the

general situation and areas requiring increased efficiency were identified with the help of consultations from the Kharkiv City Council and qualitative assessments.

The diagnostic tool made it possible to determine the level of development of sub-areas of the five main areas of stability. Accordingly, we can say which sub-areas are at a relatively good (strong) level and require minor or even significant work aimed at improving economic and policy efficiency.

Resilience areas, depending on the mode of assessment, were divided into three groups:

- Relatively strong resilience areas of the city of Kharkiv: social protection of labor (RPI 2-3), scope and quality of city planning (RPI 4-2).
- Resilience areas in which some work is required to improve performance: openness and external market integration (RPI 1-2), entrepreneurship and innovation (RPI 1-3), labor market flexibility (RPI 2-1), labor mobility (RPI 2-2), city fiscal space (RPI 3-3), structure and leadership (RPI 4-1), investment readiness (RPI 4-3), coverage and functionality of basic public services and infrastructure (RPI 5-1), health and service coverage (RPI 5-2), connectivity and mobility (5-3).
- Resilience areas in which significant work is required to improve operational efficiency: local economy diversity (RPI 1-1), productivity, economic and financial capacity (RPI 1-4), size and depth of financial system (RPI 3-1), financial performance and soundness (RPI 3-2), city financial health and stability (RPI 3-4).

Based on the scores of the five resilience areas, the following average points can be assigned:

RA1: resilience of the local business environment (C +)

RA2: resilience of the local labor market (B+)

RA3: resilience of the local financial system (C)

RA4: sustainability of economic governance (B+)

RA5: resilience of basic services infrastructure and connectivity (B)

Based on the results of the diagnostics, it can be concluded that the city of Kharkiv is sufficient in the overall effectiveness of the five resilience areas. However, there are sub-areas in which significant work needs to be done to improve the city's activities to increase resilience to external influences such as the COVID-19 pandemic.

It should be said that there were no problems in the city with the provision of food, social services, transport accessibility, water supply, sewerage, heat supply, removal of solid waste, communications, etc.

At the same time, the increase in the number of unemployed at the introduction of quarantine measures indicates insufficient readiness and mobility of enterprises to respond to an emergency

situation which the COVID-19 has become for the economy not only in Kharkiv, but also in Ukraine at the national level and globally.

Moreover, to improve the city's performance in building resilience to external influences such as the COVID-19 pandemic, the city is pursuing targeted policies. The work of the executive bodies of the Kharkiv City Council is aimed at solving the main tasks of the socio-economic development of Kharkiv: increasing the competitiveness and investment attractiveness of the city, promoting the development of the real sector of the economy, ensuring the stable functioning of the social, engineering, transport and communal infrastructure of the city, improving the quality of life and ensuring an adequate level of social protection of the population.

Further, in order to conduct a better analysis of the economic sustainability of the city of Kharkiv or any other city in Ukraine in the future, it is necessary to expand and improve statistical data and reporting both at the national and regional levels, primarily on the labor market.

A further effective solution would consist of conducting separate sectoral studies on the state and development of the city infrastructure, public spaces and cycling and pedestrian infrastructure.

Publications and bibliography

Active Group Sociological and Marketing Research, Kharkiv.

Delo. "More than half of all Ukrainians use smartphones." 30 March 2019.

<https://delo.ua/business/smartfonami-polzujutsja-bolee-poloviny-ukraincev-351535/>.

Development Program of the KP for 2015-2026, "Kharkiv Vodokanal".

https://vodokanal.kharkov.ua/content/invest_programma

EU-ILO Project "Strengthening Labor Administration to Improve Working Conditions and Overcome Undeclared Work." https://www.ilo.org/budapest/what-we-do/projects/enhancing-labadmin-ukraine/WCMS_645249/lang--en/index.htm

International Monetary Fund (IMF). Policy responses to COVID-19. <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#top>

IMF Working Paper WP/ 21/127 "Will COVID-19 affect inequality? Evidence from past pandemics," Furceri, D., P. Loungani, J. D. Ostry, and P. Pizzuto. 2020.

<https://www.imf.org/en/Publications/WP/Issues/2021/05/01/Will-COVID-19-Affect-Inequality-Evidence-from-Past-Pandemics-50286>

IMF World Economic Outlook Database October 2020 (updated) estimates, showing the annual real GDP growth; measured by annual per cent change). <https://www.imf.org/-/media/Files/Publications/WEO/2021/Update/January/English/data/WEOJan2021update.ashx>

JSC "Kharkiv City Electric Network" <http://tec5.kharkov.ua/eng/index.php>

Kharkiv City. Information on city industry. <https://www.kharkov.ua/industry/industry.htm>.

Kharkiv City Council. "Kharkiv City Council will provide financial support to entrepreneurs" (Ukrainian). 14 June 2021. <https://www.city.kharkov.ua/uk/news/-47703.html>.

Kharkiv City Council. Main indicators of economic and social development of Kharkiv for the first quarter of 2021 (Ukrainian). <https://www.city.kharkov.ua/ru/document/osnovni-pokazniki-ekonomichnogo-i-sotsialnogo-rozvitku-m-kharkova-za-i-kvartal-2021-roku-62432.html>.

Kharkiv City Council. Decision of the 38th session of the Kharkiv City Council of the 7th convocation dated 02.12.2020 № 2313/20 approved “Program of environmental protection of Kharkiv for 2021-2030”. <https://www.city.kharkov.ua/uk/document/rishennya-38-sesii-kharkivskoi-miskoi-radi-7-sklikannya-vid-02122020-231320-zatverdzhena-programa-okhoroni-navkolishnogo-prirodnogo-seredovischa-m-kharkova-na-2021-2030-roki-60261.html>.

Kharkiv Region Head Statistical Department. <http://kh.ukrstat.gov.ua/ekspres-vypusky>.

Kharkivoblenergo. Joint Stock Company. <https://www.oblenergo.kharkov.ua/tabledisconnect>.

Liga Financy. “Gosstat has clarified their GDP data. The Ministry of Economy states that the peak of the decline has passed.” 23 March 2021. <https://finance.liga.net/ekonomika/novosti/ekonomika-ukrainy-v-2020-godu-sokratilas-na-4-gosstat-utochnil-dannye>.

National Bank of Ukraine, Loan Portfolio Quality (NPLs). <https://bank.gov.ua/en/stability/npl>

National Bank of Ukraine. Statistics. <https://bank.gov.ua/ua/statistic/nbustatic>.

National Bank of Ukraine. Shadow Economy of Ukraine. Study of the shadow economy in Ukraine: approximately on quarter of national GDP - or 846 billion hryvnia – is contained in the shadow economy. 17 February 2020. <https://bank.gov.ua/ua/news/all/doslidjennya-tinovoyi-ekonomiki-v-ukrayini--mayje-chvert-vvp--abo-846-mlrd-griven--perebuvaie-v-tini>.

State Statistics Service of Ukraine. <http://www.ukrstat.gov.ua/>.

Television News Service (TSN). “Ukrainians told how they get to work and how much time they spend on it.” <https://tsn.ua/ukrayina/ukrayinci-rozpovili-yak-dobirayutsya-na-robotu-i-skilki-chasu-na-ce-vitrachayut-652474.html>.

United Nations Geneva Charter on Sustainable Housing, https://unece.org/DAM/hlm/charter/Language_versions/ENG_Geneva_UN_Charter.pdf

World Health Organization Statistic COVID-19 Dashboard. 22 April 2021. <https://covid19.who.int/>