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CITY HUMAN POTENTIAL RANKING 2023

2024

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METHODOLOGY AND RESULTS OF COMPARATIVE ANALYSIS OF 100 BRICS+ DEVELOPMENT LEADING CITIES

2024

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FOREWORD OF THE RECTOR

Dr. José Antonio Esquivias Romero

Universidad Panamericana Campus Guadalajara

Cities, the vibrant engines of our era, stand poised to ignite the full potential of their people. As technology rewrites the narrative of our world and global trends unfold, nurturing the talent within these urban landscapes has become the cornerstone of a flourishing future. This aligns with the ambitious goals of the UN's 2030 Agenda and New Urban Agenda, underscoring the urgent need for a transformative shift in how we approach human development in urban spaces. Inspired by these profound principles, we have created the City Human Potential Ranking, leveraging their frameworks to build a comprehensive tool for analyzing cities through the lens of human capital. The ranking is based on UNESCO's approach to evaluating societal and urban development. It adheres to the principles of the Education 2030 Sustainable Development Agenda (Incheon Declaration) and incorporates several UNESCO-developed metrics. These include indicators measuring digital and educational inequality, quality of life, scientific and technological advancement and lifelong learning. The ranking also adopts UNESCO's methods for database formation, primary indicator analysis and calculation.

Recognizing the complexity of modern cities and the multitude of actors shaping their success, Universidad Panamericana introduces the City Human Potential Ranking. This innovative framework fills a critical gap by assessing cities based on their ability to nurture and leverage human capital. It fosters extensive comparisons, allowing city leaders to benchmark against each other and identify best practices for attracting, retaining, and empowering talent.

The BRICS+ nations, with over 3 billion inhabitants, represent a vibrant constellation of this potential. Their rapid economic growth, fueled by factors like urbanization, infrastructure development and technological innovation, has empowered millions and created exciting opportunities. By 2050, over 60% of BRICS+ citizens will call cities home, further solidifying their role as hubs of innovation and economic activity.

The City Human Potential Ranking embodies a transformative vision, empowering cities to embrace their role as incubators of human potential. This report delves into the increasing prominence of individual creative potential and how cities can cultivate it for societal well-being. We explore the interconnectedness of education, the labor market, and the digital realm, identifying key factors that contribute to citizen prosperity and self-actualization.

By harnessing this framework, we can unlock the collective brilliance of our urban centers, fostering vibrant ecosystems where human potential flourishes. I extend my sincere gratitude to Mr. Guillermo Sosa Gómez and our esteemed partners from Malaysia, India, Indonesia, Brazil and other countries for their invaluable contributions to this report. Together, we can empower individuals and cities to reach their full potential, shaping a brighter future for all.

DEFINITIONS AND ABBREVIATIONS

Human Development Index	- an integral indicator calculated annually for cross-country comparison and measurement of living standards, literacy, education, and longevity as the main characteristics of human potential of the territory under study. It is a standard tool for general comparison of living standards of different countries and regions (hereinafter - HDI).
BRICS+	- member states of the BRICS intergovernmental organization (Brazil, Russia, India, China, South Africa), as well as countries invited to become members of the organization, candidates for membership and the ones interested in joining the organization (at least forty-five countries).
UNESCO	- the United Nations Educational, Scientific and Cultural Organization (UNESCO) is a specialized agency of the United Nations (UN) that promotes world peace and security through international cooperation in education, the arts, sciences, and culture. It has 193 member states and 11 associate member states.
Sustainable Development Goals	- The Sustainable Development Goals (SDGs) are a set of 17 interconnected goals that aim to build a better and more sustainable future for everyone on Earth. Adopted by the United Nations General Assembly in 2015 and aiming for achievement by 2030, the SDGs are part of the UN resolution "Agenda 2030" (hereinafter referred to as the SDGs).
City Human Potential Ranking	- a set of indicators characterizing the human potential of BRICS+ development leading cities, as identified by the criteria for the concentration of the population potential of cities as a basis for their socio-economic development (hereinafter referred to as the Ranking, CHPR).
Development leading cities	- cities with characteristics indicative of both current and potential capabilities for spearheading development, compared to other urban centers within the BRICS+ nations

DEFINITIONS AND ABBREVIATIONS

Population potential	- the collective characteristics of city residents, which have a fundamental impact on the outcomes of their activities across various spheres and domains (hereinafter – PoP).
PoP concentration	- density as a qualitative characteristic of human potential formed and realized in the city through its institutional and infrastructural capabilities (hereinafter - PoPC).
Target model	- a comprehensive framework for evaluating and ranking objects based on defined criteria that empowers informed decision-making and allows for meaningful comparisons between objects in terms of their relative performance or quality.
Integral indicator (subranking)	- an indicator derived from a distinct set of factors that synthesizes an overall evaluation of a specific aspect within a broader domain of inquiry (e.g., education).
International Working Group	- an international working group composed of researchers from esteemed universities in the BRICS+ nations, forming the core expertise on the following key areas: • socio-economic development, education, labor market, digital infrastructure and technologies, and other fields related to PoPC • statistics, evaluation, and mathematical measurements (hereinafter referred to as the IWG). The Panamerican University (Mexico), as the creator and headliner of the Ranking, determines the composition of the IWGs.

I. Q&A

1.1 Why City Human Potential Ranking BRICS+?

Amidst a rapidly evolving global landscape characterized by dynamic shifts in international relations, novel opportunities for collaborative endeavors and developmental progress are rising to the fore. In this context, the BRICS intergovernmental organization stands as a potent force capable of articulating shared aspirations and devising promising, mutually beneficial pathways to their realization. The expanding BRICS organization exhibits considerable potential for fostering concerted efforts towards tackling pressing global concerns, paramount among which is the imperative of nurturing and empowering human potential.

The expanding BRICS group and the nations seeking to join this intergovernmental organization prioritize rapid development. Their focus hinges on two key aspects: the size of their populations (with 43% of the world's inhabitants residing in the five BRICS member states) and the quality of the human capital, encompassing intellectual and other relevant characteristics. Development leading cities, identified by a specific set of criteria, accumulate resources for driving progress within these countries, both currently and potentially, when compared to other cities in BRICS+ nations.

By the first half of the 21st century, while occupying only 2% of the Earth's surface, cities had already become home to more than half of the world's population. This remarkable concentration of human potential distinguishes urban centers and reveals a strong correlation between population density and the availability of resources and opportunities for individual growth and fulfillment. Cities boasting robust education systems, vibrant business and intellectual environments, well-developed infrastructure, and diverse institutional frameworks naturally attract a greater influx of human capital, often of the highest caliber.

The formation of large cities and urban agglomerations represents one of the most significant contemporary socio-economic processes. This growth is often accompanied by a rising concentration of human potential, which can be understood as the collective capabilities and resources held by a city's population. This concentration, in turn, can be viewed as a form of density – a qualitative characteristic reflecting the degree to which the city's institutional and infrastructural capacities are capable of effectively supporting and leveraging the potential of its inhabitants.

The inaugural City Human Potential Ranking is based on UNESCO's methodology for assessing the role of education in achieving sustainable development through lifelong learning for all. The Ranking evaluates leading development cities from BRICS+ countries according to criteria crucial for the concentration and manifestation of the potential of their populations as the basis for socio-economic development. In other words, the CHPR assesses how cities shape living conditions, placing the citizens at the heart of such efforts and making their well-being the central focus.

Guillermo Sosa Gómez

Scientific Director of the City Human Potential Ranking.

Professor-Researcher at the Faculty of Economics and Business Sciences, Panamerican University, Guadalajara, Mexico

Panamerican University has brought together international experts to create the City Human Potential Ranking of BRICS+ cities because it sees immense potential in this area of development.

The underlying comprehensive assessment approach that covers such areas as education, labor market and advanced digital technology development, characterizes the cities – leaders in the development in their counties – in terms of their modernity, prospects for the citizens and focus on their well-being.

1.2 Who develops the City Human Potential Ranking?

The ranking methodology was developed in 2023 by an International Working Group convened at the initiative of the Panamerican University (Mexico). The group is composed of:

1. **Amy Yeo Chu May**, Professor, Tunku Abdul Rahman University of Management and Technology, Kuala Lumpur, Malaysia
2. **Anoj Raj**, Head of the Department of Education, Education College Swami Vivekanand Subharti University, India
3. **Guillermo Sosa Gómez**, Professor-Researcher at the Faculty of Economics and Business Sciences, Panamerican University, Guadalajara, Mexico (Scientific Director of the City Human Potential Ranking)
4. **Hazri Jamil, Prof. Dr.**, Pusat Pengajian Ilmu Pendidikan | School of Educational Studies, Universiti Sains Malaysia

5. **Magdalena Alejandra Gaete Sepulveda**, Senior Research Fellow, Head of the Laboratory for Reputation Management in Education, HSE Campus in St. Petersburg, Russia
6. **María Dolores del Río**, Associate Professor, University Austral, Buenos Aires,
7. **Maria Socorro L. Romabiles**, Professor, Innovation and Business Program, Asian Institute of Management, Manila, Philippines
8. **Maxim Khomyakov**, Dean of Arts and Sciences, University of Central Asia (UCA), Bishkek, Kyrgyzstan
9. **Miguel Angel Esquivias Padilla**, Research Professor, Universitas Airlangga, Surabaya, Indonesia
10. **Omar Guillermo Rojas Altamirano**, Professor, Department of Economic Studies, Panamerican University, Guadalajara, Mexico

1.3 What methodology is the City Human Potential Ranking based on?

The indicative basis of the ranking methodology was formed with established approaches to social and urban development assessment employed by UNESCO, the United Nations (UN), the International Labor Organization (ILO), and the international perspective of "United Cities and Local Governments". These include:

UNESCO – in terms of:

- Focus on key thematic areas such as achieving equity in education and eliminating barriers to education as a foundation for societal development.

- Utilizing the International Standard Classification of Education (ISCED).

- Embracing the ideology of the UNESCO Global Network of Learning Cities, which is focused on the long-term development of sustainability through lifelong learning for all.

- Assessment of the characteristics of science, technology, and the accessibility of their outcomes for all groups of citizens (without gender segregation or any other form of segregation).

- Approaches to assessing the quality of life, inequality, and prospects for social development.

- Evaluation of authorities' efforts to address data inequalities and digital segregation.

- Approaches to database formation, as well as the analysis and calculation methodologies of primary indicators.

The United Nations, through its focus on measuring city performance in achieving the Sustainable Development Goals (SDGs), in terms of:

- SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- SDG 5: Achieve gender equality and empower all women and girls.
- SDG 10: Reduce inequality within and among countries.
- SDG 11: Make cities and human settlements inclusive, safe, resilient, and sustainable.

International Labor Organization frameworks for decent work indicators and **United Cities and Local Governments** methodologies for urban sustainability assessment are employed as well.

The employed methods enable cities' PoP analysis and characterization of its concentration levels as key predictors of future development. This approach fosters extensive comparative possibilities and offers a rich framework for designing and implementing advanced tools for human potential development in leadership-oriented cities.

Magdalena Alejandra Gaete Sepulveda

Senior Research Fellow, Head of the Laboratory for Reputation Management in Education, HSE Campus in St. Petersburg, Russia

The human potential ranking of cities relies primarily on open data provided by cities in accessible sources. We consider this to be an important value component of the proposed approach. In the modern world, information openness is an important indicator of a city's development and capabilities, as well as a demonstration of its attention to the interests and needs of citizens.

Methodology used for the ranking is in line with the most up to date scientific approaches and requirements, UNESCO's evaluation and ranking approaches, as well as the ILO's Decent Work Agenda, its principles and indicators.

1.4 Which cities are included in the City Human Potential Ranking?

The following key criteria were employed as the basis for identifying BRICS+ development leading cities:

1. **Membership in the BRICS** organization, including members, invited participants, candidates and countries expressing interest.
2. **City population** (in comparable data formats) as a general quantitative measure of PoPC.
3. **Human Development Index** (HDI) as a key qualitative indicator of PoPC.
4. **Presence of universities** as a key factor of the city's PoPC realization opportunities.

The following data were also considered when selecting the city and categorizing it as a development-leading city:

- city/regional GRP per capita (GDP).
- the city's budget volume/revenues.
- city investment indicators.
- other growth/innovation/socio-economic development indicators.

As a result, a comprehensive list of 100 BRICS+ development leading cities was formed encompassing metropolises, major cities and, in specific instances, large cities that significantly contribute to their nation's socio-economic, scientific, educational, and innovative development (Annex A).

One hundred cities from 32 countries across four continents, representing a combined population of approximately 470 million (17% of the world's total), were included in the extensive analysis (Figure 1).

Figure 1 – CHPR countries on the world map

An important overall indicator of the concentration of human potential in cities is the Human Development Index (HDI). This composite index, based on life expectancy, education (average and expected years of schooling) and per capita income, ranks countries into four development levels. Higher life expectancy, educational attainment and GNI per capita provide a higher HDI ranking of the city. Among BRICS nations, Russia exhibits the highest HDI ranking (52nd globally in 2021), followed by China (79th), Brazil (87th), South Africa (109th) and India (132nd). Within BRICS+ Russia is surpassed by several countries, including the United Arab Emirates (26th), Saudi Arabia (35th), Chile (42nd), Argentina (47th) and Turkey (48th).

Individual administrative-territorial units were measured using similar indicators within countries. For the analyzed leading cities, HDI data from their respective administrative-territorial units were also used . Therefore, a shortlist of cities was generated using the HDI criterion, which includes the most developed cities from those selected at the first stage (Table 1).

Table 1. Shortlist of BRICS+ development leading cities (international names, alphabetized by country)

№	City	Country	Population	Weight	Presence of university
1.	**Hong Kong**	China	7.498.100	**0.952**	Yes
2.	**Moscow**	Russia	13.104.177	**0.940**	Yes
3.	**Saint Petersburg**	Russia	5.600.044	**0.918**	Yes
4.	**Beijing**	China	21.705.021	**0.907**	Yes
5.	**Riyadh (Al Riyadh)**	Saudi Arabia	7.009.100	**0.900**	Yes
6.	**Kazan**	Russia	1.314.685	**0.897**	Yes
7.	**Buenos Aires**	Argentina	2.890.166	**0.882**	Yes
8.	**Krasnoyarsk**	Russia	1.196.913	**0.873**	Yes
9.	**Mecca**	Saudi Arabia	1.534.754	**0.871**	Yes
10.	**Medina**	Saudi Arabia	1.100.181	**0.871**	Yes
11.	**Istanbul**	Turkey	10.895.272	**0.867**	Yes
12.	**Samara**	Russia	1.163.645	**0.866**	Yes
13.	**Yekaterinburg**	Russia	1.539.371	**0.864**	Yes
14.	**Novosibirsk**	Russia	1.635.338	**0.862**	Yes
15.	**Kuala Lumpur**	Malaysia	1.982.100	**0.858**	Yes

For example, https://en.wikipedia.org/wiki/List_of_Mexican_states_by_Human_Development_Index
https://hdr.undp.org/content/subnational-human-development-index-moving-beyond-country-level-averages

№	City	Country	Population	Weight	Presence of university
16.	**Ankara**	Turkey	5.270.575	**0.854**	Yes
17.	**Cordoba**	Argentina	1.317.298	**0.840**	Yes
18.	**Izmir**	Turkey	2.948.160	**0.836**	Yes
19.	**Montevideo**	Uruguay	1.304.811	**0.826**	Yes
20.	**Tashkent**	Uzbekistan	2,934,100	**0.820**	Yes
21.	**Mexico City**	Mexico	9,209,944	**0.815**	Yes
22.	**Adana**	Turkey	1,810,646	**0.815**	Yes
23.	**Antalya**	Turkey	1,496,881	**0.815**	Yes
24.	**Tehran**	Iran	8,693,706	**0.810**	Yes
25.	**Bogota**	Colombia	7,980,125	**0.797**	Yes
26.	**Astana**	Kazakhstan	1,409,497	**0.796**	Yes
27.	**Mexicali**	Mexico	1,034,224	**0.788**	Yes
28.	**Tijuana**	Mexico	1,696,923	**0.788**	Yes
28.	**Monterrey**	Mexico	1,122,874	**0.786**	Yes
30.	**Culiacán**	Mexico	808,416	**0.782**	Yes

The shortlisted BRICS+ cities demonstrably exhibit high to remarkably high levels of human development. This selection facilitates the identification of key growth points within the BRICS+ nations. Through subsequent detailed analysis, we can then discern the specific attributes that contribute to these cities' leading positions. This approach both illuminates the factors underpinning their success and unveils potential avenues for further strengthening and advancement.

María Dolores del Río

Associate Professor, University Austral, Buenos Aires, Argentina

"The effort of countries and cities on the Sustainable Development Goals to improve the well-being and welfare of their inhabitants is a key indicator of its importance. The development of human potential is a top priority in modern society, which depends on quality and accessible education, opportunities in the labor market, and support from modern digital technologies. The development of human potential is a significant benchmark for a successful future.

II. Ranking methodology

2.1 General methodology

The analysis of PoP ("potential of population") concentration in cities as a basis for their socio-economic development examines two perspectives:

1. "*People for the City*": assessing the quality and prospects for the development of population's potential as a basis for socio-economic development of cities.
2. "*City for the People*": evaluating the opportunities provided by city institutions for realizing and nurturing potential of the population.

These complementary dimensions comprehensively characterize the PoP of cities as a foundation for their socio-economic development.

The general approach to studying, assessing and ranking cities' PoPs rests on three key principles:

- **Data and Methods:** Reliable and valid data and methods are crucial. We rely on official city statistics and, if necessary, expertise from the International Working Group to refine information, increase sensitivity, and further customize tools.
- **Transparency and Accessibility:** To assess the key aspects of PoPs, we use cities' data published in accessible and reliable sources, primarily on official city and public online resources, as well as stakeholder-collected data, gathered through information requests and other methods.
- **Data Continuity:** To guarantee data comparability across different time periods, we rely on data that is collected and published regularly.

Key parameters for assessing a city's ability to develop and realize its people's potential through urban institutions include:

- **Human-centered focus:** A humanistic social policy that prioritizes and empowers its people
- **Progressive development:** Continuous advancement in education, labor (employment), and technology.
- **Balance and integrity:** Strong and interconnected relationships between education, labor, and technology.

The CHPR comprises the overall City Human Potential Ranking and three subrankings: Education, Labor Market, and Digital Technologies.

This ranking employs comparative and retrospective analysis of statistical data, utilizing methodological approaches developed by representatives of the BRICS countries for the annual 'BRICS. Joint Statistical Publications'.

2.2 Data and indicator system

Three types of data form the foundation of our primary indicators:

1. Dichotomous variables (yes/no) capture unique characteristics not yet reflected in standard statistics, like the presence of city-funded "urban educational spaces« dedicated to promoting science and fostering creative, research, and design activities in young people within cutting-edge technological fields.

2. Established indicators from international statistics, such as the "Unemployment Rate, per cent".

3. Primary statistics like the "Number of population with a diploma of completion of postgraduate, doctoral and equivalent programs (ISCED8), thousand people".

The ranking gathers data on six key elements, categorized into two groups:

- **Core data:** Education, Labor Market, and Digital Technologies;
- **Contextual data:** Demography, Urban Governance, and Science.

Subrankings are calculated using an additive factor rating method on the basis of complex indicators that are normalized beforehand, which makes them comparable and ensures the proportionality of the values, which are added up. The importance of each complex indicator of the subranking is then assessed and considered. For indicators, the higher value of which is interpreted negatively, the numerator of the fraction will contain the minimum value instead of the maximum one.

Thirty complex indicators form the heart of the subrankings. These indicators further break down into 150 individual indicators, which ultimately rely on 198 primary indicators across three distinct data clusters.

The "PoPC and Education" Cluster:

This cluster analyzes the city's education-related PoPC and includes:

- *General PoPC in Education*: This examines the population's educational attainment across different levels and fields.
- *PoPC in Lifelong Learning*: This considers the system's accessibility in terms of categories, duration, gender, etc.
- *Diversification of PoPC in Education*: This evaluates the diversity of educational options and coverage offered.
- *Special PoPCs in Education*: This focuses on specific areas like modern technology training and creative fields.

The "PoPC and Labor market" Cluster:

This cluster characterizes the labor market's PoPC and includes:

- *General PoPC in the Labor Market:* This analyzes the employment and unemployment patterns of the population.
- *Diversification of PoPC in the Labor Market*: This assesses the variety of employment types and activities, including jobs related to new technologies and formats.
- *Special PoPCs in the Labor Market:* This focuses on the employment structure in specific areas of the urban economy, such as high-tech and creative industries.

The "PoPC and Digital Technologies" Cluster:

This cluster evaluates the PoPC within the context of digital infrastructure and technologies, including:

- *General PoPC in Digital Infrastructure:* This examines the accessibility of various service types to different user categories.
- *General PoPC in the Use of Digital Technologies:* This assesses the adoption of different technologies by various user categories.

For each indicator, a calculation methodology with a formula is provided. This formula may include: weights assigned to individual components (including those determined through expert assessments); acceptable and used data sources for calculations. For composite indicators containing multiple independent attributes or indicators, a detailed list of all components and their justification is provided in Annex B.

2.3 Methodology for calculating the integral ranking

The PoPC target model serves as a comprehensive framework for evaluating and ranking objects based on defined criteria. It empowers informed decision-making, allows for meaningful comparisons between objects in terms of their relative performance or quality, and provides a means to characterize the current state of affairs while outlining potential developmental pathways. Refer to Figure 2 for a visual representation of the PoPC target model.

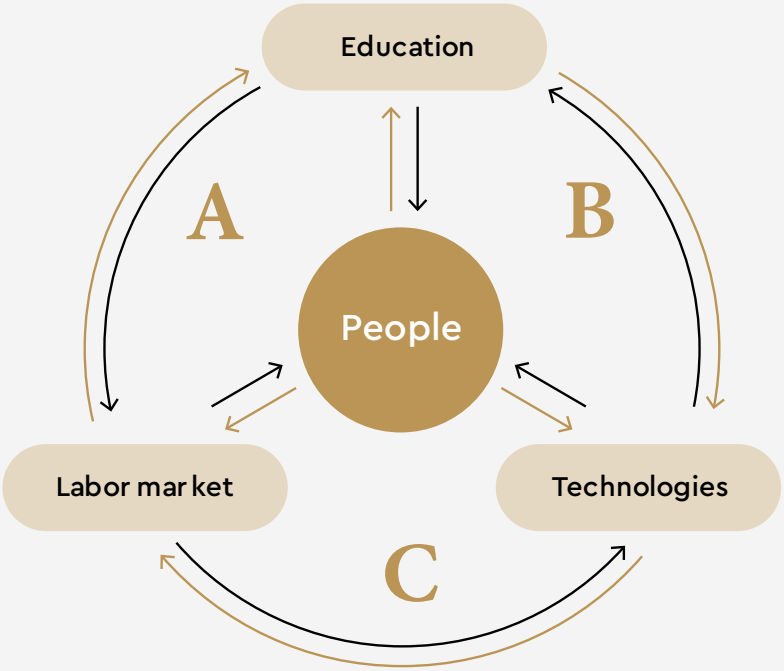


Figure 2 – PoPC target model (visualization)

The target model illustrates how both the human potential of an urban population and the level of its concentration interact with factors like education, the labor market, and the development of advanced technologies. Forward-looking approaches in these areas are especially crucial, as they determine how the city integrates and leverages its human resources. Importantly, these areas don't exist in isolation but are interconnected. Education and the labor market, for example, work together to drive economic and social development, while the integration of advanced digital technologies in these areas fosters both synergy and the long-term sustainability of implemented measures.

The methodology for calculating the PoPC overall ranking aligns with the PoPC target model. For each participating city, the overall ranking value spans a range from 0 (minimum score) to 1 (maximum score) and is determined using the following formula:

$$R_{\mathrm{CHPR}(i)} = \frac{R_{E(i)} + R_{\mathrm{LM}(i)} + R_{T(i)}}{3}$$, where:

$R_{\mathrm{CHPR}(i)}$ – the overall ranking value for the city *i*

$R_{E(i)}$ – value of the Education subranking for the city *i*

$R_{\mathrm{LM}(i)}$ – value of the Labor Market subranking for the city *i*

$R_{T(i)}$ – value of the Technology subranking for the city *i*

The three subrankings are calculated using the single formula:

$$R_{\mathrm{E/LM/T}(i)} = \frac{X_{1(i)}^{\mathrm{norm}} * a_1 + X_{2(i)}^{\mathrm{norm}} * a_2 + \cdots + X_{N(i)}^{\mathrm{norm}} * a_N}{N}$$, where:

$R_{E/LM/T(i)}$ – subranking values for the city *i*

$X_{1(i)}^{\mathrm{norm}}$ – values of complex indicators used in the subrankings, normalized to 1 for the city *i*

$a_{1..N}$ – weights of complex indicators used in the subrankings, assigned by experts

N – number of complex indicators used in the subrankings ("Education": N = 16; "Labor Market": N = 9; "Technologies": N =5).

Refer to Table 2 for weighting coefficients of complex indicators used in the subrankings.

Table 2. Weighting coefficients of complex indicators in subrankings

№	Complex indicators	Weight
i1	Educational potential	**15**
i2	Involvement in advanced education	**15**
i3	Educational potential homogeneity	**5**
i4	Sufficiency of city educational infrastructure	**15**
i5	Equity and equality of educational opportunities	**5**
i6	Extent of confirmed adult development	**5**
i7	Developmental potential of the city	**15**
i8	Prioritization of lifelong learning	**15**
i9	Tertiary education pathways variability	**2**
i10	Technological equipment of educational infrastructure	**2**
i11	Digitalization of education	**2**
i12	Tertiary education demand among international students	**1**
i13	Synergy level between education and the labor market	**2**
i14	City scientific potential	**5**
i15	Synergy level between science and education system	**1**

№	Complex indicators	Weight
i16	Educational potential of urban environment	**10**
i17	Decent work indicators	**15**
i18	Youth labor	**15**
i19	Employment promotion	**10**
i20	New forms of employment	**10**
i21	Precarious employment/precarious work	**10**
i22	Labor market digitalization	**10**
i23	Research and development work	**10**
i24	Innovation-related work	**10**
i25	Support for innovation and technology development	**10**
i26	Digital infrastructure configuration in the urban environment	**15**
i27	Digital infrastructure scale in the urban environment	**15**
i28	Amount of use of digital technologies in urban services	**5**
i29	Urban digital products&services comfort and personalization	**15**
i30	Authorities actions to overcome data inequalities and digital segregation	**5**

The complex indicators are calculated using the following formula:

$X^{\text{norm}}_{1..\text{M}(i)} = \frac{P^{\text{norm}}_{1(i)} + P^{\text{norm}}_{2(i)} + \cdots + P^{\text{norm}}_{M(i)}}{M}$, where:

$X^{\text{norm}}_{1..\text{M}(i)}$ – value of the complex indicator for the city *i*

$P^{\text{norm}}_{1(i)}$ – value of the primary indicator included in the complex indicator, normalized to 1 for the city *i*

M – number of primary indicators included in the complex indicator

Subrankings are calculated on the basis of complex indicators that are normalized beforehand, which makes them comparable and ensures the proportionality of the values, which are added up. The importance of each complex indicator of the subranking is then assessed and considered. For indicators, the higher value of which is interpreted negatively, the numerator of the fraction will contain the minimum value instead of the maximum one.

III. Inaugural CHPR results 2023

3.1 Benchmarks and limitations

When publicly discussing the results of city rankings and analyzing the position of individual cities within both the overall and subrankings, it is important to acknowledge the inherent limitations of such assessments. No city ranking system can be considered truly ideal, due to both data gaps for certain cities and the challenges associated with comparing existing data. These challenges stem from discrepancies in data sources, variations in measurement methodologies employed by different cities, and the influence of geographical features, city size and regional context.

It is crucial to recognize that the International Working Group developed the ranking methodology not as a tool for control or evaluation, but rather as a research instrument. City authorities, driven by the goal of urban development, naturally possess their own information and analytical frameworks to guide their endeavors. However, through a data-driven and evidence-based approach, we can identify emerging resources with the potential to foster synergistic urban development. The Ranking explores cities' current positions, offering an additional, potentially valuable perspective for their development. In essence, the CHPR acts as a diagnostic tool for identifying gaps in governance that hinder human development within cities. By showcasing best practices and policies, it guides cities towards overcoming these gaps and implementing effective solutions.

Hence, the Ranking is viewed as an analytical tool for city administrations to raise their awareness for increased investment in human potential, and as a call to action for promoting human development opportunities within BRICS+ cities. This framework aligns with the established methodological approaches of UNESCO and remains firmly in line with the overarching objectives of the UN Sustainable Development Goals.

3.2 CHPR Results

This section outlines the implementation of the methodology used to calculate the integral ranking for BRICS+ development leading cities, followed by the presentation of the calculated characteristics for these cities within three data clusters: "PoPC and Education," "PoPC and Labor Market" and "PoPC and Digital Technologies."

Further details on the PoPC characteristics for the shortlisted BRICS+ development leading cities, encompassing 30 attributes and indicators for each city, are provided in Appendix A.

Table 3 presents the implementation of the methodology for calculating the integral ranking for the shortlisted 30 BRICS+ development leading cities.

Table 3. Calculation of the overall ranking (City Human Potential Ranking) – shortlist of cities

№	City	Ranking	Score
1.	Moscow	1	0,096
2.	Hong Kong	2	0,096
3.	Shanghai	3	0,095
4.	Mexico City	4	0,081
5.	Guangzhou	5	0,079
6.	Kuala Lumpur	6	0,077
7.	Buenos Aires	7	0,075
8.	Guadalajara	8	0,075
9.	Quezon City (NCR)	9	0,075
10.	Abu Dhabi	10	0,075
11.	Beijing	11	0,075
12.	Manila (NCR)	12	0,074
13.	São Paulo	13	0,073
14.	Dubai	14	0,073
15.	Chongqing	15	0,073
16.	Shenzhen	16	0,068
17.	Cordoba	17	0,067
18.	Astana	18	0,066
19.	Mumbai (Maharashtra)	19	0,064
20.	Istanbul	20	0,062
21.	Montevideo	21	0,058
22.	Saint Petersburg	22	0,051
23.	Riyadh (Al Riyadh)	23	0,048
24.	Almaty	24	0,047
25.	Santiago	25	0,047
26.	Kazan	26	0,045
27.	Krasnoyarsk	27	0,044
28.	Davao City	28	0,044
29.	Rosario	29	0,043
30.	Nairobi	30	0,042

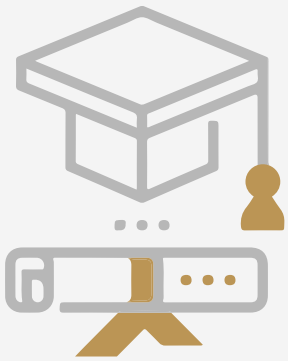
It is noteworthy that the majority of the top 15 ranked cities are classified as global cities, with a significant concentration in the leading "alpha" category[1].

[1] https://en.wikipedia.org/wiki/Globalization_and_World_Cities_Research_Network
https://www.lboro.ac.uk/microsites/geography/gawc/world2020t.html

The detailed calculations of subrankings by cluster for all participating cities are presented in Appendix C. Figure 3 further highlights the category leaders within the Ranking.

Subranking 1 - Education

1 Moscow
2 Hong Kong
3 Shenzhen
4 Chongqing
5 São Paulo
6 Beijing
7 Shanghai
8 Mexico City
9 Abu Dhabi
10 Guangzhou



Subranking 2 - Labor market

1 Moscow
2 Hong Kong
3 Shanghai
4 Guangzhou
5 Mexico City
6 Guadalajara
7 Beijing
8 Chongqing
9 Buenos Aires
10 São Paulo

Subranking 3 - Technologies

1 Shanghai
2 Hong Kong
3 Moscow
4 Kuala Lumpur
5 Mexico City
6 Manila (NCR)
7 Buenos Aires
8 Dubai
9 Guangzhou
10 Abu Dhabi

Figure 3 – CHPR subranking leaders

3.3 BRICS+ 2023 Top-tier leading cities in Population Potential Development

The leading cities of the ranking are presented on the world map (Figure 4).

Figure 4 – Leading cities of CHPR on the world map

Seven of the top 10 leading cities in the CHPR ranking are classified as "alpha" global cities, with two belonging to the "alpha+" category, the highest tier. These cities are characterized by their economies' focus on modern digital technologies and their industrial development through the information and communication sectors.

Furthermore, the cities at the forefront of the ranking demonstrate a confluence of factors contributing to their success. These include a high level of human development, a robust and comprehensive education system, strong linkages to the labor market, and a focus on leveraging modern technologies to enhance both overall well-being and urban infrastructure through the development of "smart city" initiatives.

(1) Moscow, the capital of Russia, a global "Alpha" city

Russia demonstrates a high level of human development, as reflected in its Human Development Index. Its economy also holds a notable position, ranking among the top five globally and first among European nations in terms of GDP based on PPP. Russia's extensive geography plays a crucial role in shaping its economic landscape, as the country possesses a significant portion of the world's natural resources.

Moscow boasts one of the largest urban economies in Europe. The Moscow urban agglomeration, with a population of approximately 20 million, generates over a quarter of the country's GDP, making it the largest in Europe. The city's economic engine is driven by diverse industries, including chemicals, metallurgy, food processing, textiles, furniture, energy production, mechanical engineering and software development.

Moscow is a 'smart city' with a primary focus on the development of its human capital. This involves fostering an environment and providing opportunities that empower each resident to define and achieve their personal aspirations in education, healthcare, professional endeavors, family life and leisure pursuits. Notably, ensuring equal access to these opportunities for all remains a fundamental principle, which Moscow seeks to achieve through the implementation of advanced technologies, including artificial intelligence, big data, robotics, 3D printing and others.

The digitization of documents and materials offers considerable potential for enhancing public access to a range of services, including social, educational, scientific and cultural offerings, while also diversifying leisure activities for residents within the capital city. This increased accessibility is particularly evident in the realm of education, where the implementation of distance learning programs and personalized learning pathways fosters lifelong learning and professional development opportunities for all, including people with disabilities.

The capital of Russia has fostered a thriving ecosystem where education, science and business converge in a dynamic interplay. Moscow possesses a remarkable concentration of intellectual capital, with 20% of the nation's research and development organizations and one-third of its scientific personnel. More than 50 technology parks have been established in Moscow to fuel technological innovation, market cutting-edge products, and support businesses and scientific endeavors. These hubs focus on fostering and developing high-tech ventures. To qualify as a technology park, a site has to meet special requirements set by the Government of Moscow. Any Moscow-registered company or entrepreneur in sectors like science, industry, IT and communications may apply to become a resident. These parks have played a vital role in Moscow's innovation ecosystem, with 2,255 companies now holding resident status and contributing to the creation of over 73,000 jobs.

Moscow actively promotes the concept of lifelong learning, providing educational opportunities for individuals of all ages, from preschoolers to retirees. The city boasts a world-leading position in terms of the number of schools, with 156 new schools established over the past decade. This commitment to education extends beyond quantity, with Moscow consistently ranking among the global leaders in the number of international Olympiad winners and prize-winners. Recognizing the importance of balanced development within the education sector, Moscow dedicates considerable attention to all segments, not just preschool and school education but also extracurricular and supplementary learning opportunities.

(2) Hong Kong, a special administrative region of China, a global "Alpha+" city

Hong Kong, a special administrative region (SAR) of the People's Republic of China, stands as one of the world's leading global cities and financial centers. It maintains its own distinct economic system and is recognized as an independent unit in the HDI rankings, currently holding the fourth position.

Hong Kong boasts a service-oriented market economy distinguished by low tax rates, limited government intervention in the market, and robust international financial linkages. The city is a hub for numerous high-tech and innovative companies, including several multinational corporations.

Harnessing the opportunities presented by the Guangdong – Hong Kong – Macau Greater Bay Area initiative, Hong Kong aims to further leverage its strengths in research and development, technological infrastructure, legal framework and intellectual property protection. The region aspires to become a leader in the information technology sector and act as a strategic business platform for companies seeking entry into Asia, China in particular, or for innovative mainland Chinese companies seeking global expansion.

Hong Kong occupies a strategic position as a business platform and technology market in Asia. Its innovation and technology sector, as part of the Shenzhen – Hong Kong – Guangzhou Science and Technology Cluster, ranked second globally in the 2023 Global Innovation Index.

Hong Kong's startup ecosystem has experienced significant growth in recent years, fueled by increased funding and investment in essential infrastructure. This momentum continued in 2023, with the ecosystem now employing nearly 15,000 individuals.

The primary research areas of Hong Kong's startup ecosystem encompass information and communications technology (ICT), software as a service (SaaS), the Internet of Things (IoT), data analytics, biotechnology, artificial intelligence (AI), robotics, virtual reality (VR), augmented reality (AR) and novel materials. Within the realm of practical applications, fintech, smart city and smart home solutions, healthcare advancements, and big data applications are among the most prominent sectors.

Corporate engagement in incubation and accelerator programs is steadily increasing. Universities, Cyberport, and the Hong Kong Science Park are spearheading new initiatives to foster startup growth. Several noteworthy funding rounds have been secured by startups, particularly those with a "unicorn" status.

The critical role of human capital in information technology (IT) has been a key driver of Hong Kong's success in the field. Hong Kong's openness to foreign talent has significantly contributed to the growth of research and development (R&D) activities in this sector.

Hong Kong's universities hold impressive positions in science and engineering fields within both the QS and Times Higher Education rankings, bolstering the ICT sector. This academic strength translates into a robust research landscape, characterized by steadily increasing internal R&D expenditures and a growing pool of R&D personnel. Notably, the impact of this research is expanding, with a rising proportion finding its way into commercialization, collaborative industry research activities and contributing to the society and the economy in other ways.

(3) Shanghai, China's financial center, a global "Alpha+" city

China boasts the world's second-largest economy, and its continued growth occupies a central position within the current global economic expansion. This expansive trajectory is envisioned to bolster both China's domestic economic and political structures, as well as its international standing. In this context, the cultivation of a highly skilled and educated workforce, characterized by strong human capital, is perceived as a critical driver of future economic advancement. Ultimately, the development of such human capital is considered foundational to China's ambition to spearhead technology-driven industries and navigate the complexities of future-oriented development.

Shanghai stands as a major global metropolis, ranking as the third most populous city in the world, following Tokyo and Delhi. Its significance extends beyond demographics, as it serves as a prominent hub for finance, business, and economic activity, encompassing research, science and technology, manufacturing, transportation, tourism, and cultural endeavors. The city's rapid economic growth has earned it recognition as a key showcase for China's burgeoning economic development. As of 2022, Shanghai boasts the presence of 12 Fortune Global 500 companies and occupies the 4th position in the Global Financial Centers Index, further solidifying its position as a leading force in the international arena.

Shanghai's contemporary industrial structure exhibits an inverted pyramid configuration. Traditional sectors like textiles, low-productivity industries and labor-intensive operations have largely migrated to the suburbs, other provinces or have undergone closure. This shift signifies a substantial advancement in the city's overall industrial landscape, facilitating the formation and gradual consolidation of its core competitive advantages. Currently, Shanghai's six key industries – retail, finance, information technology, real estate, machinery and automobile manufacturing – collectively contribute approximately to half of the city's GDP.

Furthermore, Shanghai stands as a prominent global R&D hub, ranking third worldwide in research output as of 2022. This position is further bolstered by the presence of numerous prestigious universities, including Fudan University and Shanghai Jiao Tong University. With a substantial workforce of over 209,000 R&D researchers, Shanghai's contribution to the development of new technologies has witnessed significant growth in recent years. This places the city second only to Tokyo and Silicon Valley among 1,000 major cities globally in terms of R&D activity.

Shanghai, a rapidly evolving metropolis, exemplifies the dynamic interplay between adapting to local needs and embracing global trends. In 2023, it cemented its position as Asia's leading smart city, driven by factors such as the Suishenban Citizen Cloud platform, offering over 1,000 citizen services, widespread 5G adoption and innovative technologies like digital twins. All of the top cities in this ranking have implemented services that leverage data and connectivity to enhance citizen engagement.

Similar to other technologically advanced cities in China, Shanghai stands out for its emphasis on patent acquisition and venture capital investment. This focus can be attributed, in part, to China's prioritization of manufacturing, which incentivizes companies to safeguard and leverage their intellectual property. Notably, the high-tech sector remains the primary domain where substantial incentives are offered to foreign investors, serving as a strategic measure to attract innovative and knowledge-intensive businesses to the country.

Since 2015, Shanghai has actively pursued the development of a comprehensive framework for scientific and technological innovation. This strategic objective, identified as the city's paramount priority by its authorities, aims to concentrate the functions of a globally influential technology and innovation center within Shanghai. As a testament to this commitment, KPMG's Technology Innovation Hubs Report placed Shanghai at the forefront of its ranking for promising innovation leaders.

(4) Mexico City, the capital of Mexico, a global "Alpha" city

Mexico, a North American nation, boasts a multifaceted array of resources and industries, strategically positioned in proximity to the world's largest economy. Its export-driven emerging market economy ranks as the 10th largest globally and the second largest in Latin America, following Brazil.

Despite demonstrably strong macroeconomic stability, as acknowledged by the World Bank, Mexico exhibits significant disparities in income and development across various social and geographical dimensions. These include pronounced gaps between the well-off and the less fortunate, between the northern and southern states, and between urban and rural populations. Consequently, the Mexican economy presents a complex tapestry of contrasting industries and agricultural systems. While acknowledging these persisting inequalities, it is crucial to recognize the ongoing efforts to bridge these gaps. Increased access to social and educational programs fosters upward mobility and contributes to a gradual reduction in disparities.

Mexico City holds the distinction of being the largest city in North America and ranks among the top 50 in the world in terms of GDP. This economic prowess translates to its significant role within Mexico itself, serving as the center of federal political power and the engine driving roughly 15% of the nation's GDP.

This leadership position stems from a confluence of factors rooted in the city's rich history and strategic significance. Its origins within a diverse and resource-rich environment provided a fertile ground for early development. Furthermore, Mexico City's long history as a densely populated area fostered a vibrant cultural and economic exchange, solidifying its position as a central hub. Throughout the centuries, its rulers have consistently designated the city for pivotal roles, further solidifying its preeminence within the region and beyond.

Mexico City demonstrates a multifaceted approach to fostering innovation, encompassing both holistic, macro-level strategies and targeted initiatives within specific policy areas. One-third of researchers affiliated with the National System of Researchers (SNI) – Mexico's premier scientific and technological research network – are based in Mexico City. The city stands out as a hub for financial technology startups, incubating approximately 60% of the nation's total. This emphasis reflects the city's prioritization of the fintech sector. Furthermore, Mexico City residents contribute to 40% of the patents granted within the country. Notably, the city houses UNAM, the university holding the distinction of generating the most patents in Latin America.

Mexico is increasingly recognized as a nation with several urban centers exhibiting characteristics of smart cities. Among these, Mexico City stands out as the most advanced in integrating new technologies into its urban fabric. Transportation constitutes a focal point of this innovative approach. Within the bustling metropolis, residents leverage diverse applications for daily mobility, encompassing ride-sharing services, taxi booking platforms and others. Moreover, Mexico City stands as a pioneer in implementing a bicycle-sharing system ("ecobici"), aiming to optimize travel times and alleviate traffic congestion.

The substantial size and population density of Mexico City present significant challenges for local government, necessitating strategic implementation of information and communication technologies (ICTs) for effective governance. In such urban contexts, processes like registration, planning, resource management, financing, capacity building and ICT governance require robust and enduring institutional frameworks. These frameworks must facilitate the collaboration and engagement of diverse social actors within the city's territory.

Particularly relevant to densely populated urban environments like Mexico City is the principle espoused by technology experts: "think big, start small and act fast." The evolving needs of citizens necessitate a forward-looking and proactive approach from public administration. When addressing local challenges, improvisation, lack of persistence or procrastination are unacceptable.

(5) Guangzhou, the largest urban agglomeration in the world, a global "Alpha" city

Guangzhou, the administrative center of Guangdong Province, is a recognized global transportation and trade hub as well as an emerging science and technology innovation center. Its strategic location within China's southern region and its participation in the Greater Bay Area further enhance its status as the nation's most attractive investment destination. Guangzhou's economic focus prioritizes the development of advanced and competitive industries, leveraging its robust manufacturing base, established service sector and well-developed industrial ecosystem. These elements are complemented by supportive policies encouraging high-tech innovation, research and development, solidifying Guangzhou's position as a dynamic player in China's economic landscape.

Due to its location at the confluence of inland rivers and the sea, it has long been one of China's major commercial centers. Historically, the city was the starting point of the Maritime Silk Road, and during the Qing Dynasty (1644-1912) it was the only city authorized to conduct foreign trade and allow foreigners to live there. Since the late 20th century, highly concentrated investment along the road and rail corridors leading to Guangzhou has turned the area into a "world factory". The Canton Fair (or China Import and Export Fair, CIEF) is held here regularly (twice a year), and is China's largest trade fair. It is often called the main showcase of Chinese industry and the barometer of China's foreign trade.

At present, the city is a major research and innovation center in the Asia-Pacific region, demonstrating a high level of scientific research results, ranking 8th in the world and 4th in the Asia-Pacific region, and a major university center in China. Guangzhou, which has been awarded the "Made in China 2025" pilot city status, has a thriving high-tech industry, and its advanced products output accounts for about 60% of the total output of all industrial enterprises.

The service sector is a major contributor to Guangzhou's GDP, accounting for 73,1 percent of GDP in 2021. Automobiles, electronics and petrochemicals are among Guangzhou's major industries. The combined output of these three industries accounts for half of the city's total GDP. Other industries such as wholesale and retail trade, finance, real estate, leasing business services and transportation services also contribute significantly to the city's GDP.

Guangzhou's current national economic and social development plan prioritizes three emerging industries: smart and new energy transportation, next-generation information technology, and biomedicine and healthcare. This strategic emphasis is reflected in the composition of Guangzhou's key businesses.

Guangzhou Higher Education Mega Center (HEMC), established in 2004, is a unique district dedicated to housing prestigious higher education institutions. Beyond its ten established universities, HEMC also plays host to the renowned Guangdong Science Center, a pivotal center for scientific exploration in China. With a vibrant population exceeding 200,000 students, HEMC aptly earns the description of a "city within a city".

Situated on Xiaoguwei Island in Panyu District, the sprawling expanse of HEMC encompasses over 17,9 square kilometers. Among its distinguished residents are Sun Yat-sen University, South China University of Technology, Guangzhou University, Guangdong University of Foreign Studies, Xinghai Music Conservatory, Guangzhou Academy of Fine Arts and many more esteemed institutions.

(6) Kuala Lumpur, Malaysia's capital, a global «Alpha" city

Malaysia's human development indicators place it in the "very high" category according to the latest Human Development Report by the United Nations Development Programme (UNDP). Notably, a recent global talent ranking placed Malaysia 25th, surpassing numerous advanced economies like the United Kingdom, France and Japan, making it an attractive destination for multinational companies seeking to establish regional hubs.

Kuala Lumpur is strategically located near Malaysia's major economic regions, making it a key economic center for the country. The city provides diverse employment opportunities in finance, education, culture, healthcare, and various service sectors to its large population of around 7,8 million. Kuala Lumpur also attracts highly skilled professionals from abroad, as evidenced by its top ranking in Preply's 2023 list of most attractive cities for expats.

From its humble beginnings as a mining town, Kuala Lumpur has transformed into a dynamic economic hub in Southeast Asia. Its strategic location, ease of doing business, global connectivity, world-class infrastructure, diversified economy and multilingual workforce contribute to its position as one of Asia's fastest-growing commercial centers. This success is reflected in Kuala Lumpur's consistent ranking among the top 10 Asian cities by various indixes.

The services sector is the main economic contributor to Kuala Lumpur's GDP. Wholesale and retail trade, along with finance, are the primary drivers of this dominance. Construction emerges as the second pillar of the city's economic landscape, while tourism plays a significant supporting role. Notably, business tourism has gained traction, with conferences and conventions becoming valuable revenue streams. The tourism industry itself necessitates a broad spectrum of services and facilities, which not only generate employment opportunities across various skill levels but also contribute to Kuala Lumpur's economic diversification.

As the financial and business sectors in Kuala Lumpur expand, the city witnesses a concurrent rise in innovation and productivity. This, in turn, fuels the creation of high-skilled jobs, opening up new avenues for economic growth. The influx of knowledge-based industries has attracted and retained a highly qualified workforce, further solidifying Kuala Lumpur's position as a magnet for talent. Looking ahead, continued economic progress and diversification are anticipated to drive demand for skilled labor, potentially leading to upward wage pressures. This trajectory aligns with evolving global economic realities and ensures that Kuala Lumpur maintains its competitive edge in the emerging global marketplace.

Academic institutions in Kuala Lumpur are not only hubs for talent production but also significant employment centers in their own right. Furthermore, the influx of students associated with these institutions generates a ripple effect on the local economy. This is evidenced by the high demand for housing near universities, which fosters a thriving market for catering and other ancillary services.

(7) Buenos Aires, Argentina's capital, a global "Alpha" city

Argentina, formerly aiming to join BRICS as of January 2024, retains the second spot in South America for human development, surpassed only by Chile and ranking 47th out of 191 countries. Its Human Development Index (HDI) of 0.842 classifies it among nations with very high human development. As one of the largest economies in the G-20, Argentina boasts abundant natural resources, a well-educated populace, an export-oriented agricultural sector and a comparatively diversified industrial base.

Buenos Aires, Argentina's capital and its key financial, industrial, commercial and cultural hub, holds an alpha global city ranking from GaWC. As a leading educational institution in South America, the University of Buenos Aires boasts five Nobel Laureates among its alumni and offers taxpayer-funded education to students of diverse international backgrounds.

The city's port ranks among the busiest in South America, serving as a crucial distribution center for a vast southeastern region of the continent.

Compared to Argentina's average service sector contribution of 60%, Buenos Aires' service sector accounts for a remarkable three-quarters of the city's economy, showcasing its exceptional diversification and development. Financial services, business and real estate form the largest single sector, comprising roughly one-third of the city's economic activity. Notably, despite the dominant service sector, industrial production maintains significant prominence within the city's economic landscape.

The current city development strategy prioritizes improving the quality of life for all residents and visitors. Aligned with this focus, the city administration's overarching strategic goal through 2023 has been to actively contribute to the well-being of both citizens and guests. Implementing initiatives that foster an inclusive, sustainable, resilient, and safe city environment forms the core of this strategy. These initiatives include renovating public spaces, establishing pedestrian zones, developing new green areas, and advocating for sustainable mobility solutions. Moreover, recognizing the importance of equitable access, the city is taking targeted measures to ensure residents in low-income areas have equal opportunities for development and access to basic services. Additionally, initiatives promoting local commerce and entrepreneurship, with an emphasis on nurturing human capital and talent, further contribute to the city's overall well-being.

The fusion and integrated approach of education and workforce development is another crucial area for urban development, playing a fundamental role in the city's reconstruction and future. Linking education and work more effectively, preparing young people for emerging job markets, and providing accessible learning opportunities for lifelong learning are essential priorities. Additionally, fostering new industries like digital technology and programming, encouraging entrepreneurship, promoting workforce formalization, the development of a strong social and mass economy are key drivers of Buenos Aires' growth. Furthermore, attracting digital nomads, tourists and international students boosts the visitor economy, while prioritizing the growth of strategic and innovative sectors fuels long-term prosperity. Finally, prioritizing digital transformation that breaks down administrative hurdles and simplifies procedures for starting a business or investing in the city, coupled with a commitment to improving quality of life, creates a thriving and attractive Buenos Aires environment.

(8) Guadalajara – "Silicon Valley" of Mexico

Guadalajara, Mexico's second-largest city, has long been a vibrant hub for business, arts, culture and higher education. Its position as a center for technology and innovation extends beyond the national level, reaching across Latin America. This prominent status stems, in part, from its strong academic institutions and research centers, many of which hold prestigious national and international rankings.

Guadalajara's technological ascent has been a gradual and deliberate process, nurtured over several decades. In the 1960s foreign companies, including Kodak, Motorola, IBM, Hewlett-Packard and Siemens, established manufacturing facilities within the city. Initially driven by the allure of cost-effective labor, these establishments laid the groundwork for a burgeoning cluster of technology-focused businesses specializing in semiconductors, printers, photographic equipment and other crucial components of the industry. By the 1990s, these corporations had forged close partnerships with local universities, actively participating in the expansion of technology-related courses and programs. This collaborative effort proved highly successful in attracting and nurturing local talent, fostering the potential for Guadalajara to climb the value chain within the technology sector. However, China's entry into the World Trade Organization in late 2001 dramatically altered the landscape. In the 2000s, the manufacturing and engineering landscape in Guadalajara faced significant competition from emerging Asian economies offering lower costs and wages.

This period could have marked the decline of the city's technology sector. However, Guadalajara demonstrated remarkable resilience. Instead of succumbing to these pressures, the city leveraged its existing infrastructure and skilled workforce to pivot towards highly specialized technical professions, including research and development, programming and design. This strategic shift was built upon a foundation laid in previous decades, focusing on education and technological advancement. Consequently, Guadalajara has emerged as a prominent center for R&D and programming, attracting major players like Oracle, Intel, HP and Amazon to establish significant operations within the city.

Guadalajara, often dubbed the "Silicon Valley of Mexico", has established itself as the nation's leading producer of software, electronic and digital components. This dynamic city boasts a thriving electronics and information technology sector, attracting major global players like General Electric, IBM, SANMINA, Intel Corporation, HCL Technologies, Hitachi Ltd, Hewlett Packard Enterprise, HP Inc. and Siemens.

Guadalajara's commitment to progress and innovation is evident in its pioneering role in smart city initiatives. Notably, the city was the first among ten municipalities to participate in the prestigious IEEE Smart Cities Initiative (SCI), launched in 2014. This initiative fosters collaboration between participating cities, renowned builders, and world-renowned experts in the field. Through the SCI, Guadalajara has access to valuable investments and assistance in implementing its smart city strategies, further solidifying its position as a leader in technological advancement and urban development.

The State Government of Jalisco is spearheading a transformative educational initiative called RECREA. Recognizing the limitations of the existing system, RECREA aims to overhaul Jalisco's approach to education by prioritizing holistic individual development, fostering talent through targeted training and recruitment, and embracing a vision that seamlessly blends humanism, innovation and collaboration. This vision seeks to establish a sustainable, high-quality educational service that nurtures responsible citizens within a framework of inclusivity and equality.

RECREA's importance is underscored by its alignment with the recommendations of renowned experts and educational institutions. In particular, the initiative closely reflects the proposals put forward by the United Nations Educational, Scientific and Cultural Organization (UNESCO) for rethinking education, as recognized by prestigious academics from the Harvard School of Education.

[1] http://smartcities.ieee.org/

(9) Quezon City, the largest city and ICT capital of the Philippines

The Philippines is poised to be the fastest-growing economy in ASEAN over the next few years, boasting both a robust economic outlook and the lowest regional unemployment rate. However, the country's approach to human capital stands out as atypical. Instead of solely focusing on internal development, the Philippines views its skilled workforce as a valuable export commodity. This manifests in various sectors, from business process outsourcing to electronics assembly and shipbuilding. But the most notable aspect is the export of human resources to critical industries in developed nations, particularly in the healthcare sector. As evidenced by a 2019 report from the Philippine Statistics Authority, over 2,2 million Filipinos work overseas, with Filipinos comprising 13,5% of the immigrant healthcare workforce and 2,2% of the global healthcare workforce.

Overseas Filipinos play a crucial role in the Philippines' economy, not only through enhancing its international image but also as a significant source of income. The Central Bank of the Philippines reports that remittances from overseas Filipinos exceeded $31 billion, surpassing even the contributions of the business process outsourcing industry at $29 billion. However, this reliance on overseas remittances presents a complex challenge. The emigration of highly educated Filipinos deprives the country of their potential productivity and expertise. Addressing this issue requires multifaceted solutions, including social policy initiatives already implemented by some Philippine cities.

Quezon City, the largest city and former capital of the Philippines (1948-1976), boasts a population of around 3 million. The National Competitiveness Council of the Philippines (NCCP), which publishes the annual Cities and Municipalities Competitiveness Index (CMCI), consistently ranks Quezon City as the most competitive city in the country. The CMCI evaluates cities, municipalities, and provinces based on their economic dynamism, government efficiency, and infrastructure. Quezon City's economic vibrancy is further underscored by its status as a premier destination for living and business. Additionally, the city is home to the country's leading public university, established in 1908.

Quezon City thrives as a hub of business and commerce, with well-developed light, food, chemical and metal processing industries. Information and communication technologies play a vital role in the city's economic landscape. The Department of Information and Communication Technology and the Philippine National Telecommunications Commission have established their headquarters here. Notably, the city boasts 33 ICT parks, including the Eastwood City Cyber Park, the nation's first and largest. Beyond its economic prowess, Quezon City enjoys recognition for its vibrant entertainment industry, encompassing both traditional and new media platforms. Indeed, the city serves as the home base for major Philippine broadcasting networks.

Quezon City's urban development hinges on its ambitious transformation into a smart city. The local government prioritizes data-driven governance, interconnectivity and technological integration to enhance flexibility and efficiency. Pioneering the Philippines in real estate computerization, Quezon City established a system for property valuation and payment. Subsequently, a centralized resident database was implemented to streamline service access. Additionally, a startup quality control program fosters tech entrepreneurship, encouraging innovative business models that address social challenges. These initiatives contribute to Quezon City's trajectory towards becoming a truly smart and sustainable city.

(10) Abu Dhabi, capital, and financial and industrial center of the United Arab Emirates (UAE)

The United Arab Emirates (UAE) has been ranked first in the Arab world according to the latest UNDP Human Development Report. With an HDI value of 0,911 in 2021, the UAE achieves "very high" human development and ranks 26th out of 191 countries, surpassing several highly developed nations like Spain, France and Italy. This impressive achievement stems from the country's consistent efforts to build a sustainable knowledge-based economy and prioritize human resources through sustainable development policies.

Since discovering oil and gas in the latter half of the 20th century, the UAE has undergone transformative growth. Revenues from these resources have fueled economic progress, financed ambitious government projects, and maintained a low tax environment that attracts global investors and talent. However, a key challenge now lies in diversifying the economy beyond its dependence on natural resources. To achieve this, the UAE is focusing on sustainable economic development and investing in the development of its human potential.

Abu Dhabi, the capital of the United Arab Emirates, stands as the country's second most populous city and its core political, industrial and financial hub. As the seat of the UAE's largest oil-producing emirate, Abu Dhabi generates over half of the nation's total income. Rapid development and urbanization have transformed it into a sprawling, highly developed metropolis boasting a comparatively high average income.

The past decade has witnessed a significant shift in Abu Dhabi's economic vision, with innovation and knowledge-intensive industries assuming a central role. This unwavering commitment to reinvesting natural wealth back into the broader economy has yielded demonstrably positive results. The vision itself has evolved to encompass increasingly sophisticated strategies, with businesses, sovereign wealth funds (among the world's largest) and government investment agencies strategically channeling revenues into non-oil ventures to spur growth and diversification.

Consequently, despite a continued abundance of oil resources, the sector's contribution to Abu Dhabi's GDP has shrunk to approximately 60%. This represents a significant diversification, as construction, financial services, aviation, tourism, logistics, trade, manufacturing and media now play substantially larger roles in the emirate's economic landscape compared to the past.

In 2019, Abu Dhabi's Ghadan 21 accelerator program was launched to strengthen the emirate's knowledge economy and economy of people. Focused on four key pillars: business and investment; society; knowledge and innovation, and lifestyle, the program encompassed over 50 initiatives. Many of these initiatives targeted attracting and supporting innovative startups and small businesses, while others aimed to stimulate innovation through research and development.

Abu Dhabi's economic transformation, characterized by its robust diversification, stands as a testament to the strategic investment of oil and gas revenues. This transition towards a less resource-dependent model offers valuable lessons for other resource-rich economies seeking to diversify their own.

3.4 Practices of BRICS+ Leading Cities in the PoP Development

The analysis of cities population potential development in accordance with the CHPR methodology identifies three key areas: education, the labor market and advanced technologies, primarily digital ones. However, the proposed PoPC model highlights the interconnectedness and interdependence of these components. It suggests that analyzing education and the labor market in isolation is insufficient; instead, considering them in a symbiotic relationship is crucial, as this determines the long-term effectiveness of any development efforts. Similarly, the analysis of digital technologies should not solely focus on the technology itself, but rather on its integration with education and the subsequent changes in work and business processes, along with the anticipated outcomes of such integration. It is this collaborative approach, in accordance with the methodology, that ultimately defines the PoPC, by accumulating and manifesting the full potential of the city's inhabitants. Therefore, we will now examine how leading cities from the 2023 CHPR ranking translate the PoPC model's components into concrete practices.

A) Education and Labor Market

In the contemporary world, the extent of synergy between education and the labor market is recognized as a critical factor in fostering effective social development and sustainable prosperity. This synergy manifests through several key practices, including educational organizations that have joint educational programs and projects with city employers; the presence of large employers with their own corporate universities and other educational units for employee training; and the presence of city-funded programs and projects that study the demands of the labor market and employers and transmit these demands to the education system.

Moscow, the top ranked city in this category, has been implementing a set of measures to improve the efficiency of the interaction between the education system and the labor market for several years. For example, the Moscow government has established the Autonomous Non-Profit Organization "Human Capital Development", whose projects promote the involvement of the population in the development and implementation of advanced solutions for the city. Its projects focus on creating the necessary conditions for career guidance, skill development and retraining of personnel in accordance with the needs of the Moscow economy. For this purpose, a specialized platform has been created on an area of over 20,000 square meters – a new type of ecosystem that combines various formats of training for in-demand professions called "Technograd".

Complementing these efforts are additional projects, such as the "Voluntary Qualification Examination". This initiative evaluates the proficiency of university students in employer-defined theoretical and practical tasks. Similarly, "Turnstile-free Days" offer city residents and their families the opportunity to visit innovative Moscow companies and explore emerging career fields through guided excursions.

Similar priorities are also evident in the initiatives undertaken by the governments of other CHPR leading cities. For instance, the Department of Education and Knowledge of **Abu Dhabi** (ADEK) has implemented the "Rize" university preparation program, which incorporates a dedicated career guidance component. This program aims to equip high school students with the essential recommendations, tools, and resources necessary to effectively prepare for their future university studies and subsequent careers.

The program is also aimed at bridging the gap between future students, higher education institutions and industry through webinars and information sessions held in direct cooperation with local and international universities and companies.

Furthermore, cities with a focus on talent development deserve mention as a distinct area exhibiting significant potential for economic and societal progress of countries. Malaysia's TalentCorp, a government agency established over a decade ago, contributes to the country's talent pool. It actively addresses the issue of "brain drain" by fostering local talent development and ensuring that the skillsets of the domestic workforce align with evolving industry demands. One key initiative is the SFCF industry job fair, held regularly in **Kuala Lumpur** in collaboration with local universities and companies. The efforts extend beyond graduates, engaging with management-level personnel as well.

The InvestKL Talent Program aims to cultivate and elevate the leadership capabilities of local talent throughout their professional journey. By collaborating with and building upon existing initiatives of partnering corporations, the Program specifically targets high-potential individuals for development, from recent graduates to senior management. This is achieved through three distinct streams: internship programs for college and university students, young leader development programs for individuals with up to five years of experience, and senior leader programs.

The **Hong Kong** government has dedicated significant effort over the past two decades to establishing the city as a regional education hub. This initiative aims to address the dual needs of fostering talent for local industries and attracting high-caliber individuals from across the globe, contributing to Hong Kong's enhanced competitiveness and long-term development. The emphasis on internationalization and diversification within the higher education sector serves as a key strategy in achieving this ambitious goal.

The **Guadalajara** state government has played a key role in fostering an ecosystem for talent development and support. Since 2018, its RECREA program has implemented a comprehensive and sustainable strategy to promote scientific, technological, and innovative orientations from elementary to high school. This strategy aligns with the new public policy, the Jalisco Tech Hub Act, which aims to establish Jalisco as a leader in innovation and high technology in Mexico and Latin America. The Act achieves this by strengthening extracurricular programs in technology and engineering education, alongside bilingual and intercultural education initiatives.

When considering talent support and development, it is crucial to acknowledge the importance of measures that address inequality and promote equal access to educational opportunities for all citizens, regardless of factors such as gender, origin, or socioeconomic background. Despite disparities in educational development across **Mexico City**, the PILARES (an acronym for Innovation, Freedom, Arts, Education, and Knowledge Points) program, established in 2019, seeks to address this challenge by repurposing urban infrastructure to create accessible educational spaces.

PILARES buildings strategically repurpose urban structures into a distributed network of community centers. These centers provide diverse offerings, including educational classes, creative workshops, recreational activities, and safe spaces for leisure. By expanding access to education, culture, and recreational opportunities, PILARES empowers youth from underserved city areas. This adaptive reuse fosters new connections between schools and communities, transforming urban neighborhoods.

Shanghai's education system has garnered significant attention for its consistently impressive performance on the Program for International Student Assessment (PISA). This success has been attributed to several factors, including the city's unique approach to teacher recruitment and training, as well as its distinctive pedagogical methods. Notably, these practices have been adopted and yielded positive results in other contexts, such as the United Kingdom. Moreover, data suggests that Shanghai's system fosters equitable outcomes, with a considerable proportion of students from socioeconomically disadvantaged backgrounds achieving high scores across various subjects.

The efforts of diverse government and municipal employment services play a significant role in ensuring a well-staffed labor market with the right skills. The Quezon City Government Employment Services Office (QCGESO) exemplify this. Through initiatives like job matching and coaching, QCGESO promotes equal employment opportunities for city residents and expands their access to livelihood or vocational training. Additionally, the office fosters industry sustainability by facilitating tripartite interaction between unions, employer associations and the city government. Notably, QCGESO enhances accessibility for job seekers by providing online services on public computers at the city service.

To address similar challenges, **Moscow** established a network of over 160 employment centers, with a flagship Moscow Employment Center catering specifically to motivated job seekers facing difficulties in finding work. The Center offers a range of individualized services to both citizens and employers, including job search assistance, professional training and retraining opportunities, employment placement, psychological support, employee recruitment and registration. The Center prioritizes assisting vulnerable populations such as youth, women with young children, older adults, individuals with disabilities and low-income families with children.

The development of an integrated lifelong learning system plays a crucial role in balancing the supply and demand for quality jobs and qualified labor. This can be exemplified by the experience of **Guangzhou**, which was acknowledged for its commitment to lifelong learning by joining the UNESCO Global Network of Learning Cities in 2022. The city's vision centers on fostering a local culture of learning and leveraging lifelong education for all to achieve sustainable urban development. The city's medium-term strategy is focused on creating a new education system that would be fair, dynamic, innovative, and inclusive. This aligns with Guangzhou's policy of promoting decent work opportunities and entrepreneurship. To facilitate employment and entrepreneurship, stakeholders from various educational sectors, including vocational, academic, non-academic, and post-professional settings, collaborate effectively. One exemplary initiative is the Guangdong Province skilled worker training program, which has already subsidized retraining for approximately 400,000 people.

In addition to prioritizing education for children and youth, the city should actively promote and invest in adult education programs. The popularity of adult education in **Hong Kong** stems from its ability to provide individuals with opportunities for higher education later in life. This concept, less prevalent in the past, has gained significant traction in recent decades. The Hong Kong Education Bureau has played a key role in this development by launching evening courses and offering fee remission schemes for students facing financial constraints. A diverse range of institutions cater to adult learners, including non-profit organizations, Vocational Training Councils embedded within universities and private educational providers. Moreover, the Open University of Hong Kong stands as a dedicated institution specifically for mature students.

The "Learn and Dream" project in **Guangzhou** addresses both economic and social development goals through its focus on upskilling industrial workers within a lifelong learning framework. The initiative has demonstrably impacted over 160,000 workers, with more than 80,000 achieving higher education qualifications and around 30% securing promotions to professional roles. Another project dedicated to the connection between education and work is related to the training of rural officials at universities. More than 10,000 people have participated in it, of whom more than 70% have received a higher education document.

The interaction between municipalities and employers in the field of education extends beyond personnel training. Notably, there are successful examples of companies actively contributing to the development of urban educational infrastructure. Initiatives like RECREA highlight the crucial role of various social and educational players in achieving educational goals. One such instance is the creation of the Fund for the Infrastructure of Education of the State of Jalisco, established through collaboration with the private sector. This unique trust management structure enables companies to directly support education in Guadalajara and other settlements. Its effectiveness is exemplified by the successful large-scale reconstruction and modernization of educational institutions across Mexico in 2023.

In the implementation of the goals of lifelong education, measures aimed at a comprehensive implementation of the relationship between education and the labor market in the context of emerging technologies stand out. In other words, all three components of the target model of the PoPC are thus interrelated. First of all, we are talking about the training of specialists and working with talents in priority areas of development of the digital economy.

The **Abu Dhabi** government prioritizes cultivating a generation of young professionals equipped for the digital age. This focus extends beyond technical proficiency, aiming to nurture individuals who actively push the boundaries of digital innovation. Recognizing this, a 42-coding school franchise was launched in 2020, in partnership with the Department of Education and Knowledge (ADEK) as part of the Ghadan 21 program. This initiative, founded on peer-to-peer learning principles, fosters flexible knowledge acquisition through a project-based, gamified approach.

Inspired by the 42-coding school in Paris, a similar free program was launched in **Moscow** in 2020. This initiative forms part of the digital ecosystem developed by Sber, the largest universal bank in Russia and Eastern Europe, also known as Sberbank, a state financial conglomerate.

To address the need for lifelong learning for students with high intellectual abilities, the Center for Education for Students with High Abilities (CEPAC) established a school in Guadalajara in 2019. This program began with 90 students and has since grown to serve 120 students for the 2022-2023 academic year. Further expanding its reach, CEPAC launched a bachelor's degree program in 2021, providing an enriched educational environment for an additional 70 high-ability students. These combined efforts empower 295 talented residents of Jalisco, equipping them with the knowledge and skills to potentially lead the state towards a brighter future.

The "education - labor market - technology" link can also be implemented for the category of students with special needs. Thus, in 2021, the Department of Education and Knowledge of **Abu Dhabi** (ADEK) opened the Center for Vocational Training for Students with Special Needs (AKTI), who graduated from the Al Karama school. Its goal is to provide various paths of industry training through strategic partnerships with organizations offering professional training in key industries related to the UAE future needs in human capital, including electronics and robotics, games and esports, and others.

In 2021, the Quezon City Department of Education partnered with the Quezon City Youth Development Alliance (YDA) to develop an initiative supporting the integration of non-enrolled youth into professional pathways, employment opportunities and entrepreneurial ventures. This initiative prioritizes residents of barangays (the poorest neighborhoods in the city), with community representatives undergoing training to implement projects fostering youth engagement in education and employment.

(B) Education and Technology

While CHPR leading cities exhibit varying degrees of digital transformation progress, their municipal administrations consistently prioritize tasks crucial to advancing their digital landscapes. These priorities encompass the development of digital infrastructure, the implementation of digitalization initiatives (i.e., digital transformation) and the integration of digital technologies into vital processes. Additionally, considerable focus is placed on cultivating the competencies necessary to achieve these objectives.

Shanghai is highly focused on digitizing its education system. The Shanghai Municipal Commission of Education is working on the Shanghai education digital transformation plan, aiming to turn the city into a national benchmark for education digital transformation. Recognizing the multifaceted challenges inherent in educational digitalization, the plan outlines eight comprehensive guidelines: the development and promotion of new education infrastructure: the promotion of business process reengineering of education management, the improvement of digital literacy, the implementation of the digitization of education assessment, the conduct of a comprehensive education assessment based on data.

The digitization of education in **Moscow** is being implemented through the "My Electronic School" project This single, interactive platform serves as a comprehensive educational tool, encompassing an electronic diary and journal, a digital library, and a student portfolio. Used daily by all of Moscow's 700+ schools and accessed by over 3 million users, "My Electronic School" offers a free service where teachers can grade assignments, students can complete and monitor homework, and parents can gain valuable insights. Parents can check their child's attendance, academic performance, and overall school experience through the platform.

One of the priorities of the RECREA initiative is a program to promote the development of technologies as a means of accelerating the improvement of services provided by the Ministry of Education of Jalisco. Through "RECREA Digital", content was created that strengthens the learning process, and training was provided for teachers and management staff in digital literacy. The "Mi Muro" platform optimized access and service delivery to the education structure, and the "Red Jalisco" network democratized access to free high-speed internet in schools in **Guadalajara** and all regions of the state.

The reach of digital infrastructure extends beyond traditional educational settings. In 2023, Kuala Lumpur witnessed the opening of the first fully digital library, a project by the Malaysian Resource Corporation Bhd (MRCB) under the management of **Kuala Lumpur** City Hall. This innovative library boasts a collection exceeding 4,400 digital editions, readily accessible to visitors. Beyond access to digital resources, the library features 28 desktop computers, 10 iPad devices and a dedicated interactive section for children. Furthermore, students can utilize the library's conference rooms for group study sessions or project discussions.

Advanced technologies are being actively integrated into educational practices in **Hong Kong**. In 2023, the Hong Kong University of Science and Technology and the Education University of Hong Kong announced that they would allow the use of artificial intelligence-powered tools and large language models, such as ChatGPT, in their coursework. University representatives note that the advent of artificial intelligence technology has led to huge changes in traditional education. Teachers need to be more active than ever before, acting as facilitators to help students understand the strengths and limitations of artificial intelligence, while promoting responsible use of technology.

The rapid development and pervasive use of digital technologies have transformed all aspects of human life. In 2021, **Mexico City** earned the Guinness World Record title for "Most Connected City to the Internet" due to its impressive network of 21,500 free Wi-Fi hotspots, surpassing major rivals like Moscow, Seoul, and Tokyo. Notably, this citywide initiative prioritizes equitable access, specifically targeting marginalized communities. Further demonstrating its commitment to digital inclusion, the government has pledged to expand Wi-Fi availability in crucial public spaces, including elementary and secondary schools, as well as city universities.

In 2018, the Mexico City government established the Digital Agency for Public Innovations (ADIP) which operates in three key areas: expanding public internet access through free Wi-Fi initiatives, developing digital tools for citizen oversight, and designing digital solutions to streamline government services. This agency acts as a central hub, consolidating Mexico City's goals and strategies in data analysis, open government, e-government, and digital governance. ADIP's diverse projects range from data publication and tracking platforms to the creation of a single digital portal for business registration, aiming to reduce corruption and improve efficiency. Notably, Mexico City views technological innovation as a powerful tool for promoting civic participation and strengthening government accountability.

Similar measures are being taken in other cities. This requires appropriate training, namely the formation of digital literacy. In 2018, it became clear that Jalisco was lagging behind in terms of digital literacy and the development of digital skills among the population. To address this issue, the **Guadalajara** City Administration implemented an integrated strategy aimed at promoting a digital culture, with a focus on people and their education, promoting critical, effective, and responsible use of technology. This strategy includes an online services platform, digital skills development, high-speed connectivity, educational resources, and technical equipment.

Quezon City is also undergoing a digital transformation that is changing the way citizens interact with the city and its services. The city has implemented several initiatives to promote digital literacy and expand access to the Internet. These include free public Wi-Fi hotspots and a digital portal that provides access to government services. In particular, the Quezon City government, through the Gender and Development Council, the School Affairs Office, and the Disability Affairs Office, offers free computer literacy workshops for women on issues such as parenting in the digital age and the associated problems of cyberbullying and cyber security in general.

The development of digital infrastructure is supported by the development of relevant competencies, not only user-based, but also aimed at the development of technologies in the future. Here, the priority is for the STEM direction, which allows schoolchildren to engage in meaningful technological tasks.

To implement the **Abu Dhabi** Development Plan and the UAE National Innovation Strategy, the Abu Dhabi Department of Education and Knowledge (ADEK) has been implementing the "Lema?" program for more than 10 years, which offers entertaining and interactive workshops in educational classrooms to inspire future leaders and strengthen their abilities in the fields of science, technology, engineering, and mathematics. This is part of a set of measures to develop the talents of future scientists, innovators, and entrepreneurs of the Emirate, aimed at encouraging students aged 6 to 11 to develop their knowledge within STEM programs for their further self-realization in these areas.

The implementation of innovative teaching methods based on project work is a formula that has demonstrated its effectiveness in improving academic results. The use of advanced technologies, project-based learning, and the STEAM methodology have become key in the classrooms of **Guadalajara** and other cities in Jalisco. These methods strengthen learning and develop skills among students to overcome the challenges of the knowledge economy and the increasingly digital world.

The «Desafío Jóvenes RECREA STEAM» (Youth Challenge) began in 2021 with a powerful goal: to inspire high school students to solve the problems of their communities with creative and innovative projects based on their knowledge and skills in the field of STEAM. To date, 2,325 projects have been submitted with the participation of 24,288 students and 2,906 teachers from 102 municipalities with the support of 117 strategic partners. A noticeable characteristic of the project was the participation of women, who made up 52% of all participants, which means sustainable progress in achieving gender equality in areas where women have historically been underrepresented, such as science, technology, and innovation.

In **Moscow**, similar tasks are being solved by extracurricular education, implemented by a network of Children's Technopark, consisting of 21 specialized sites, the purpose of which is to give practical skills of working at real enterprises, to teach children the basics of working on modern equipment with the subsequent possible conclusion of deferred employment contracts with industrial partners (leading high-tech enterprises of various industries) for guaranteed employment in the future.

(B) Labor market and technology

The relationship between the labor market and technology manifests is evident in numerous ways, one of which is the formation of innovation infrastructure and the subsequent creation of high-tech jobs. By the end of 2020, the **Shanghai** Science and Technology Innovation Center had established its core infrastructure, exceeding key performance targets. In 2023, Shanghai formally enacted the "Plan to Promote the Construction of Greater Zero Bay S&T Innovation Functional Source Zone," creating an open block-type science and technology park adjacent to the university. This park, envisioned as a new engine for Shanghai's innovation hub, seeks to foster linkages between campus, park, and urban areas.

Similarly, Guangzhou Science City (GSC) exemplifies the creation of a technology center through dedicated government support. This pioneering project, rooted in strategic urban planning, integrates industrial, residential, and commercial spaces, establishing a suburban center within Guangzhou's polycentric urban structure. Although construction began in 2000, the municipal government continuously refined the plan through annual adjustments, prioritizing the attraction of human capital and advanced technology. Following a 2010 shift towards fostering innovation and dynamic interaction within the cluster, the GSC has focused on sectors such as electronics, information technology, pharmaceuticals, and environmental technology.

Moscow's commitment to innovation is evident in its active support for technology development and its initiatives to drive innovation-related employment and industries. To facilitate further dynamism and accelerate the commercialization of research, as well as the emergence of new competitive products and high-tech companies, Moscow is establishing two science and technology valleys: one affiliated with Lomonosov Moscow State University and another associated with Bauman Moscow State Technical University. The flagship Lomonosov cluster within the Vorobyovy Gory science and technology center opened in early 2023 and already fosters close collaboration between young innovators, corporations and the city itself.

The implementation of infrastructure projects also leads to other components, including those related to human capital. In 2022, the Jalisco Tech Hub Act was launched in **Guadalajara**, Mexico. This program is aimed at increasing the competitiveness of the innovation and high-tech ecosystem in Jalisco and strengthening the state's position as a center for innovation, talent and high-tech on both national and Latin American level. In June 2023, the Talent Tech Hub program, which is part of the "talent for the technology ecosystem" strategy, was launched. This program aims to develop highly qualified human capital to meet the needs of the workforce in the manufacturing and high-tech industries in Jalisco.

Attracting and retaining the right workforce plays a significant role in the labor market-technology nexus. Hong Kong is an example of this. For Hong Kong's technology ecosystem, attracting and retaining talent is essential. Companies compete to attract qualified professionals because they want professionals from different fields of knowledge to meet the demands of the growing market. In addition, retaining staff is important because no one wants to lose a qualified employee in a thriving business ecosystem. As a result, firms offer attractive compensation packages, create a favorable work environment, and provide an array of opportunities for growth and success.

In addition, infrastructure that is being developed can also be digital and provide employment. **Shanghai** is at the forefront of digital transformation in China and is experiencing rapid growth in the digital economy. It is expected that by 2025, the city's digital economy will account for more than 60% of its GDP. Currently, the digital economy is one of the four developing sectors in Shanghai. In addition to "industrial digitization," new paradigms have also been developed, such as "digital industrialization," "data monetization" and "digital governance," which require large-scale reskilling and the development of new skills for the city's workforce.

The Madani policy in Malaysia, which focuses primarily on good governance oriented towards sustainable development, aims to create broad employment opportunities through digitalization and the appropriate development of areas such as programming, cybersecurity and e-commerce. There are numerous urban centers for the digital economy in **Kuala Lumpur** where entrepreneurs can receive services and learn how to sell their products.

As part of the **Abu Dhabi** government's digital agenda, the Abu Dhabi School of Government (ADSG) has announced the launch of the Future Shapers program. This program aims to develop the career and leadership potential of Abu Dhabi employees in the field of digital technology. Designed for both government employees and city residents, the program offers wide access to a community of like-minded individuals and technology professionals, as well as in-demand digital content and certificates for graduates who complete the program. It uses a flexible approach to learning that allows participants to learn at their own pace.

Platform employment, also known as the gig economy, is a growing trend in many megacities. It is a segment of the labor market that relies heavily on temporary and part-time positions filled by independent contractors and freelancers, whose work increasingly involves interacting with clients through an online platform. In Mexico, platform employment already accounts for around 14 million people, or 33% of the country's economy, and is expected to grow exponentially in the future. In fact, platform employment is a particular case of informal employment, and Mexico is currently the only country that has estimated the contribution of its overall informal workforce, both on informal enterprises and outside of them.

The informal workforce accounts for only about 60% of Mexico's total labor force, including up to 50% in **Mexico City**, which together generates just over 30 percent of the country's GDP.

The substantial contribution of the informal sector to Mexico's national economy and its capital city is underscored by these estimates. This trend is projected to exhibit further growth over time. In the coming decades, Mexico City expects a significant influx of climate migrants. Building on positive experiences, Mexico City is expanding inter-agency collaboration and training city officials on issues of people mobility, migrant rights, and the legal framework, strengthening the capacity of local officials to effectively respond to the challenges that future waves of migrants will face.

Argentina is also experiencing rapid growth in the platform economy, which was seriously stimulated by the COVID-19 pandemic crisis. High internet connectivity and unfavorable economic conditions in the labor market create particularly favorable conditions for the expansion of platform opportunities. Application-based platforms cover, first of all, the personal services sector, including domestic work, office repair services, food delivery, and taxi call services. The experience of **Buenos Aires** demonstrates that the introduction of platforms makes informal employment more orderly, controlled, and predictable for both workers and recipients of their services.

Measures demonstrably beneficial to the innovation industry deserve full consideration. In realizing **Quezon City's** vision as a Philippine hub for startups and innovation, the city's second-year startup quality assurance program, backed by the Department of Information and Communications Technology, the Department of Trade and Industry, and leading universities, stands as a prime example of such initiatives. Finalists undergo a comprehensive evaluation based on established criteria prioritizing innovation, creativity, sustainability, and social impact in urban development. Beyond financial support, the program provides specialized training sessions and competency development activities tailored to each startup's specific business goals.

CONCLUSION

The City Human Potential Ranking (CHPR) was first implemented in 2023 by an international working group of experts from leading universities in India, Argentina, Indonesia, Malaysia, the Philippines, Kyrgyzstan and Russia, under the initiative of the Panamerican University (Mexico).

The ranking is based on UNESCO's methodology and also draws on approaches to assessing the development of society and cities from the perspectives of the United Nations, the International Labor Organization, and the United Cities and Local Governments. It corresponds to the assessment of the characteristics of cities achieving the SDGs and pays attention to such key ideas as achieving equality in education and eliminating the barriers to education as the basis for social development. The ranking also uses methodological approaches to comparative and retrospective analysis of statistical data developed by representatives of BRICS countries for the preparation of the annual publication "BRICS. Joint Statistical Publication".

To form the ranking, data was analyzed for the 100 largest cities in 32 developing countries, including members of the BRICS intergovernmental organization (Brazil, Russia, India, China, South Africa), as well as countries invited to join the organization, candidates for membership and the states interested in joining, referred to as BRICS+ countries. The ranking is calculated on the basis of 198 primary indicators, which include statistical data, standard international statistical indicators, as well as dichotomous variables that assess processes or characteristics that have not yet been reflected in the standard statistics of countries. The analysis started with 150 primary indicators, which were then combined to form 30 complex indicators to assess the concentration of the population potential (PoPC). These 30 indicators were grouped into 9 categories within 3 clusters: education, labor market and digital technologies. The ranking is based on two complementary dimensions of analysis: "People for the city" (assessment of the quality and prospects for the development of the population's potential) and "City for the people" (assessment of the opportunities provided by urban institutions for the development and realization of the population's potential). This approach enables a comprehensive evaluation of human potential both nurtured and actualized within cities, facilitated by their institutional and infrastructural resources.

In accordance with the City Human Potential Ranking methodology, Moscow claimed the top spot, with Hong Kong following in second place, and Shanghai ranking third. Additionally, within the top ten cities, you can find Mexico City, Guangzhou, Kuala Lumpur, Buenos Aires, Guadalajara, Abu Dhabi, and Beijing.

The City Human Potential Ranking identifies key factors that contribute to a city's leading position. These include:

- High level of education of the population, accessibility and inclusivity of education and coverage, especially in terms of lifelong learning.
- High availability of digital services.
- High inclusiveness, low level of gender, ethnic, religious, and other forms of inequality.
- Diversity of employment opportunities, a wide range of job offers in the labor market.
- High level of knowledge-intensive urban economy.
- Stability of prospects for young people.
- High level of transparency of city data, which increases the accessibility of urban opportunities for the population, as well as allows for the qualitative and sufficient volume of data to be attracted for the implementation of the ranking methodology.

The ranking is expected to be updated yearly, serving as a valuable resource for mayors and city officials of the BRICS+ countries. This allows them to monitor and adjust policies and practices to better support human potential development in their cities, to address the challenges of the present and future.

Longlist of BRICS+ development leading cities (international names, alphabetized by country)

№	City	Country	Population[1]	HDI[2]	Presence of university
1	**Buenos Aires**	Argentina	2,890,166	0.882	Yes
2	**Cordoba**	Argentina	1,317,298	0.840	Yes
3	**Rosario**	Argentina	948,327	0,841	Yes
4	**Chittagong**	Bangladesh	2,592,454	0.685	Yes
5	**Dhaka**	Bangladesh	8,906,039	0.745	Yes
6	**Khulna**	Bangladesh	664,728	0.678	Yes
7	**Minsk**	Belarus	1,995,471	0,818	Yes
8	**Santa Cruz de la Sierra**	Bolivia	1,545,215	0,751	Yes
9	**Belo Horizonte**	Brazil	2,373,224	0,774	Yes
10	**Brasilia**	Brazil	2,817,068	0,814	Yes
11	**Fortaleza**	Brazil	2,643,262	0,734	Yes
12	**Rio de Janeiro**	Brazil	6,688,927	0,762	Yes
13	**Salvador**	Brazil	2,711,840	0,691	Yes
14	**São Paulo**	Brazil	11,451,245	0,806	Yes
15	**Santiago**	Chile	6,257,516	0,886	Yes
16	**Beijing**	China	21,705,021	0.907	Yes
17	**Chongqing**	China	16,340,000	0.774	Yes
18	**Guangzhou**	China	14,043,500	0,799	Yes
19	**Hong Kong**	China	7,498,100	0.952	Yes
20	**Shanghai**	China	24,870,895	0,880	Yes
21	**Shenzhen**	China	17,494,398	0,799	Yes
22	**Barranquilla**	Colombia	1,223,982	0,771	Yes
23	**Bogota**	Colombia	7,980,125	0.797	Yes
24	**Cali**	Colombia	2,394,885	0.776	Yes
25	**Medellin**	Colombia	2,486,738	0.757	Yes
26	**Alexandria**	Egypt	4,712,000	0,780	Yes

[1] Revised data. Population WorldoMeter (2023) Updates from July 2023.
URL: https://www.worldometers.info/population/world/ (accessed 20-25.11.2023).
[2] Subnational HDI (v7.0) URL: https://globaldatalab.org/shdi/shdi/ (accessed 20-25.11.2023).

№	City	Country	Population[1]	HDI[2]	Presence of university
27	**Cairo**	Egypt	9,840,591	0.779	Yes
28	**Giza**	Egypt	3,438,401	0.733	Yes
29	**Addis Ababa**	Ethiopia	3,041,002	0.741	Yes
30	**Bengaluru**	India	12,327,000	0.667	Yes
31	**Chennai (Tamil Nadu)**	India	4,681,087	0.686	Yes
32	**Delhi (NCT)**	India	26,495,000	0.730	Yes
33	**Kolkata (West Bengal)**	India	4,496,694	0.624	Yes
34	**Mumbai (Maharashtra)**	India	12,442,373	0.688	Yes
35	**Jakarta**	Indonesia	11,249,678	0.759	Yes
36	**Tehran**	Iran	8,693,706	0.810	Yes
37	**Almaty**	Kazakhstan	2,211,198	0,841	Yes
38	**Astana**	Kazakhstan	1,409,497	0.796	Yes
39	**Nairobi**	Kenya	5,545,000	0.636	Yes
40	**Kuala Lumpur**	Malaysia	1,982,100	0.858	Yes
41	**Culiacán**	Mexico	808,416	0.782	Yes
42	**Ecatepec**	Mexico	1,806,226	0.763	Yes
43	**Guadalajara**	Mexico	1,495,225	0.768	Yes
44	**Juárez**	Mexico	1,321,004	0.763	Yes
45	**León/Leon de los Aldama**	Mexico	1,579,803	0.736	Yes
46	**Mexicali**	Mexico	1,034,224	0.788	Yes
47	**Mexico City**	Mexico	9,209,944	0.815	Yes
48	**Monterrey**	Mexico	1,122,874	0.786	Yes
49	**Nezahualcóyotl/ Ciudad Nezahualcoyotl**	Mexico	1,077,208	0.763	Yes
50	**Puebla**	Mexico	1,590,256	0.721	Yes
51	**Querétaro/Santiago de Queretaro**	Mexico	626,495	0.767	Yes

№	City	Country	Population[1]	HDI[2]	Presence of university
52	**Tijuana**	Mexico	1,696,923	0.788	Yes
53	**Zapopan**	Mexico	1,476,491	0,768	Yes
54	**Managua**	Nicaragua	1,042,641	0.717	Yes
55	**Ibadan**	Nigeria	2,550,593	0.632	Yes
56	**Kano**	Nigeria	4,348,481	0.481	Yes
57	**Lagos**	Nigeria	15,070,000	0.681	Yes
58	**Faisalabad (Punjab)**	Pakistan	3,240,712	0.550	Yes
59	**Islamabad**	Pakistan	1,135,019	0.659	Yes
60	**Karachi (Sindh)**	Pakistan	14,910,352	0.517	Yes
61	**Lahore (Punjab)**	Pakistan	11,761,266	0.550	Yes
62	**Peshawar**	Pakistan	1,926,148	0.515	Yes
63	**Quetta**	Pakistan	865,151	0.463	Yes
64	**Caloocan**	Philippines	1,489,100	0.760	Yes
65	**Davao City**	Philippines	1,632,991	0.697	Yes
66	**Manila (NCR)**	Philippines	1,846,513	0.760	Yes
67	**Quezon City (NCR)**	Philippines	2,960,048	0.760	Yes
68	**Kazan**	Russia	1,314,685	0.897	Yes
69	**Krasnoyarsk**	Russia	1,196,913	0.873	Yes
70	**Moscow**	Russia	13,104,177	0.940	Yes
71	**Novosibirsk**	Russia	1,635,338	0.862	Yes
72	**Saint Petersburg**	Russia	5,600,044	0.918	Yes
73	**Samara**	Russia	1,163,645	0.866	Yes
74	**Yekaterinburg**	Russia	1,539,371	0.864	Yes
75	**Jeddah (Mecca)**	Saudi Arabia	4,697,000	0,882	Yes
76	**Mecca**	Saudi Arabia	1,534,754	0.871	Yes
77	**Medina**	Saudi Arabia	1,100,181	0.871	Yes
78	**Riyadh (Al Riyadh)**	Saudi Arabia	7,009,100	0.900	Yes

№	City	Country	Population[1]	HDI[2]	Presence of university
79	**Dakar**	Senegal	1,438,725	0.607	Yes
80	**Cape Town (Western Cape)**	South Africa	433,688	0.751	Yes
81	**Durban (KwaZulu-Natal)**	South Africa	595,061	0.710	Yes
82	**Johannesburg**	South Africa	5,635,127	0.736	Yes
83	**Pretoria**	South Africa	741,651	0.736	Yes
84	**Aleppo**	Syria	3,868,000	0.547	Yes
85	**Damascus**	Syria	2,503,000	0.612	Yes
86	**Dushanbe**	Tajikistan	1,201,800	0.756	Yes
87	**Adana**	Turkey	1,810,646	0.815	Yes
88	**Ankara**	Turkey	5,270,575	0.854	Yes
89	**Antalya**	Turkey	1,496,881	0.815	Yes
90	**Gaziantep**	Turkey	1,680,723	0.762	Yes
91	**Istanbul**	Turkey	10,895,272	0.867	Yes
92	**Izmir**	Turkey	2,948,160	0.836	Yes
93	**Abu Dhabi**	UAE	1,483,000	0,920	Yes
94	**Dubai**	UAE	3,564,931	0,920	Yes
95	**Montevideo**	Uruguay	1,304,811	0.826	Yes
96	**Tashkent**	Uzbekistan	2,934,100	0.820	Yes
97	**Caracas**	Venezuela	2,245,744	0.737	Yes
98	**Maracaibo**	Venezuela	1,551,539	0.677	Yes
99	**Maracay**	Venezuela	419,052	0.718	Yes
100	**Valencia**	Venezuela	1,696,662	0.713	Yes

Methodology for calculation of Ranking indicators

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
1	n2/n1*100	Number of population (total)	(thous. people)	n1	demography
		Number of population with an education level higher than the level of education compulsory for all citizens of the country	(thous. people)	n2	education
2	n4/n3*100	Number of population aged 15-34 years, total	(thous. people)	n3	demography
		Number of population aged 15-34 with an education level higher than the level of education compulsory for all citizens of the country	(thous. people)	n4	education
3	1/0	Number of the ISCED educational level to which the largest proportion of the population over 15 years of age belongs when the entire population is grouped by level of diploma (education) held	number from 1 to 7	n5	education
4	n5/(n1/100 000)	Number of students enrolled in tertiary education programs (ISCED 5+ISCED 6+ISCED 7+ISCED 8)	(thous. people)	n6	education
5	n6/n1*100	Number of population with a diploma from a tertiary education program (ISCED 5+ISCED 6+ISCED 7+ISCED 8)	(thous. people)	n7	education
6	n7/n3*100	Number of population aged 15-34 with a diploma from a tertiary education program (ISCED 5+ISCED 6+ISCED 7+ISCED 8)	(thous. people)	n8	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
7	n8/n1*100	Number of population with a diploma from postgraduate, doctoral or equivalent programs (ISCED 8)	(thous. people)	n9	education
8	n9/n3*100	Number of population aged 15-34 holding a diploma of postgraduate, doctoral or equivalent level (ISCED 8)	(thous. people)	n10	education
9	calculation of dispersion	Estimate indicator –"Degree of educational stratification of the population – degree of variation (dispersion) in the proportion of the population with different levels of education (ISCED 2 to 8)" (dispersion)	Share	n11	education
10	calculation of dispersion	Estimate indicator –"Extent of educational stratification of youth – degree of variation (dispersion) in the proportion of youth with different levels of education (ISCED 2 to 8)" (dispersion)	Share	n12	education
11	calculation of dispersion	Number of population with educational attainment less than or equal to ISCED 1 educational programs	(thous. people)	n13	education
	calculation of dispersion	Number of population with educational attainment less than or equal to ISCED 2 educational programs	(thous. people)	n14	education
	calculation of dispersion	Number of population with educational attainment less than or equal to ISCED 3 educational programs	(thous. people)	n15	education
	calculation of dispersion	Number of population with educational attainment less than or equal to ISCED 4 educational programs	(thous. people)	n16	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
	calculation of dispersion	Number of population with educational attainment less than or equal to ISCED 5 educational programs	(thous. people)	n17	education
	calculation of dispersion	Number of population with educational attainment less than or equal to ISCED 6 educational programs	(thous. people)	n18	education
	calculation of dispersion	Number of population with educational attainment less than or equal to ISCED 7 educational programs	(thous. people)	n19	education
12	calculation of dispersion	Number of population aged 15-34 with educational attainment less than or equal to ISCED 1 educational programs	(thous. people)	n20	education
	calculation of dispersion	Number of population aged 15-34 with educational attainment less than or equal to ISCED 3 educational programs	(thous. people)	n21	education
	calculation of dispersion	Number of population aged 15-34 with educational attainment less than or equal to ISCED 4 educational programs	(thous. people)	n22	education
	calculation of dispersion	Number of population aged 15-34 with educational attainment less than or equal to ISCED 5 educational programs	(thous. people)	n23	education
	calculation of dispersion	Number of population aged 15-34 with educational attainment less than or equal to ISCED 6 educational programs	(thous. people)	n24	education
	calculation of dispersion	Number of population aged 15-34 with educational attainment less than or equal to ISCED 7 educational programs	(thous. people)	n25	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
13	n26/n27*100	Number of places in educational organizations (irrespective of mode of operation, form of ownership and payment terms) for pre-school education programs (ISCED 1+ISCED 2)	(thous. places)	n26	education
		Number of population of school-age enrolled in pre-primary education and early childhood development programmes (ISCED 1+ISCED 2)	(thous. people)	n27	demography
14	n28/n29*100	Number of places in educational organizations (irrespective of mode of operation, form of ownership and payment terms) for school-based educational programmes (ISCED 1+ISCED 2 + ISCED 3)	(thous. people)	n28	education
		Number of population of school-age enrolled in school education programmes (ISCED 1+ISCED 2 + ISCED 3)	(thous. places)	n29	demography
15	30/n31*100	Number of places in educational organizations of additional education for children (regardless of mode of operation, form of ownership and payment terms)	(thous. people)	n30	education
		Number of population aged 0-15 years	(thous. people)	n31	demography
16	n32/n33*100	Number of places in tertiary (ISCED 5+6+7) educational organizations (irrespective of mode of operation, form of ownership and payment terms)	(thous. people)	n32	education
		Number of population of school-age enrolled in school education programmes (ISCED 1+ISCED 2 + ISCED 3)	(thous. places)	n33	demography

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
17		Number of students from other cities or countries, enrolled in tertiary education programs	(people)	n34	education
18		Number of residents who left for education in other countries and cities	(people)	n35	education
19		Availability of programs or other commitments of the city that encourage the arrival of non-resident/foreign students for the purpose of study (dichotomous variable)	yes=1	n36	education
20		Availability of free educational opportunities for children and youth from disadvantaged backgrounds (for each ISCED program) (dichotomous variable)	yes=1	n37	education
17		Number of students from other cities or countries, enrolled in tertiary education programs	(people)	n34	education
18		Number of residents who left for education in other countries and cities	(people)	n35	education
19		Availability of programs or other commitments of the city that encourage the arrival of non-resident/foreign students for the purpose of study (dichotomous variable)	yes=1	n36	education
20		Availability of free educational opportunities for children and youth from disadvantaged backgrounds (for each ISCED program) (dichotomous variable)	yes=1	n37	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
21		Number of population enrolled in ISCED 1 education programs (primary school education= grades 1-4)	(thous. places)	n38	education
		Number of population enrolled in ISCED 2 education programs (primary school education= grades 5-9)	(thous. places)	n39	education
		Number of population enrolled in ISCED 3 education programs (primary school education= grades 10-11)	(thous. places)	n40	education
		Number of population enrolled in ISCED 4 education programmes (post-secondary non-tertiary = secondary vocational education based on grade 11)	(thous. places)	n41	education
		Number of people enrolled in ISCED 5 education programs (short tertiary education = secondary vocational education, training of middle-level specialists)	(thous. places)	n42	education
		Number of population enrolled in ISCED 6 (bachelor's degree) educational programs	(thous. places)	n43	education
		Number of population enrolled in ISCED7 (Master's degree) educational programs	(thous. places)	n44	education
		Number of population enrolled in ISCED educational programs8 (postgraduate, doctoral and equivalent)	(thous. places)	n45	education
		Number of women enrolled in ISCED 1 education programs	(thous. places)	n46	education
		Number of women enrolled in ISCED 2 education programs	(thous. places)	n47	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
		Number of women enrolled in ISCED 3 education programs	(thous. places)	n48	education
		Number of women enrolled in ISCED 4 education programs	(thous. places)	n49	education
		Number of women enrolled in ISCED 5 education programs	(thous. places)	n50	education
		Number of women enrolled in ISCED 6 education programs	(thous. places)	n51	education
		Number of women enrolled in ISCED 7 education programs	(thous. places)	n52	education
		Number of women enrolled in ISCED 8 education programs	(thous. places)	n53	education
22	(n54+n55+n56)/3	Availability of education for people with special health needs – share of educational organizations with an infrastructure for providing education to people with special needs (preschool level)	yes=1	n54	education
		Availability of education for people with special health needs - share of educational organizations with the infrastructure to provide education for people with special needs (school level)	yes=1	n55	education
		Availability of education for people with special health needs – share of educational organizations with the infrastructure to provide education for people with special needs (tertiary level)	yes=1	n56	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
23	(n57+n58+n59)/3	Availability of education in a non-state official or minority language of the state population (preschool education)	yes=1	n57	education
		Availability of education in a non-state official or minority language of the state population (schooling)	yes=1	n58	education
		Availability of education in a non-state official or minority language of the state population (tertiary education)	yes=1	n59	education
24	n60/n61*100	Number of children without the opportunity to develop their abilities before attending compulsory education programs, not attending any educational and/or developmental program	thous. people	n60	education
		Number of children under the age of compulsory education (preschoolers)	thous. people	n61	demography
25	n62/n63*100	Number of children not attending school	thous. people	n62	education
26	(n63+n64+n65)/3	Presence in the city of special structures (organizations or subdivisions in the structure of municipal authorities) responsible for informing and consulting citizens on the possibility of education and choice of educational organizations (preschool education) (dichotomous variable)	yes=1	n63	urban governance and policy

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
		Presence in the city of special structures (organizations or subdivisions in the structure of municipal authorities) responsible for informing and consulting citizens on the possibility of education and choice of educational organizations (school education) (dichotomous variable)	yes=1	n64	urban governance and policy
		Presence in the city of special structures (organizations or subdivisions in the structure of municipal authorities) responsible for informing and consulting citizens on the possibility of education and choice of educational organizations (tertiary education) (dichotomous variable)	yes=1	n65	urban governance and policy
27	n66/n67*100	Number of citizens attending non-compulsory (additional) adult education programs	thous. people	n66	education
		Number of population over 15 years old	thous. people	n67	demography
28	n68/n1*100	Number of population with 2 or more diplomas in tertiary education programs	thous. people	n68	education
29	n68/n3*100	Number of citizens aged 15-34 years attending non-compulsory (additional) adult education programs	thous. people	n69	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
30	1/0	Availability of programs/projects of free additional vocational training for adults for the unemployed or people changing professional trajectory (dichotomous variable)		n70	education
31	1/0	Availability of programs/projects of free additional professional training of adults for youth (dichotomous variable)		n71	education
32	1/0	Presence of structures (organizations or subdivisions within municipal authorities) responsible for informal education of youth and adults (dichotomous variable)		n72	education
33	1/0	Availability of municipal educational programs (additional professional education and development) for state/municipal employees financed from the municipal budget (dichotomous variable)		n73	education
34	1/0	Availability of municipal educational programs (additional professional education and development) for health workers financed from the municipal budget or employer (dichotomous variable)		n74	education
35	1/0	Availability of municipal educational programs (additional professional education and development) for teaching staff financed from the municipal budget or employer (dichotomous variable)		n75	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
36	n77/n76*100	Number of state/municipal employees in the city (total)		n76	labor market
		Number of state/municipal employees in the city who annually undergo additional professional education at the expense of the municipal budget		n77	education
37	n79/n78*100	Number of healthcare workers (total)		n78	labor market
		Number of medical workers who annually undergo additional professional education at the expense of the municipal budget		n79	labor market or healthcare
38	n81/n80*100	Number of teaching staff (total)		n80	education
		Number of pedagogical staff who annually undergo additional professional education at the expense of the municipal budget		n81	labor market or education
39	1/0	Availability of tertiary educational organizations in natural sciences: includes areas related to physics, chemistry, biology, mathematics and other natural sciences (dichotomous variable)		n82	education
40	1/0	Availability of educational organizations of tertiary education in technical sciences: includes areas related to engineering, information technologies, computer science, electronics and other technical specialties (dichotomous variable)		n83	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
41	1/0	Availability of tertiary educational organizations in medicine and healthcare: includes areas related to medicine, dentistry, pharmacy, medical and other medical specialties (dichotomous variable)		n84	education
42	1/0	Availability of tertiary educational organizations humanities: includes areas related to history, literature, philosophy, sociology, political science and other humanities (dichotomous variable)		n85	education
43	1/0	Availability of educational organizations of tertiary education in social sciences: includes areas related to economics, psychology, sociology, political science, international relations and other social sciences (dichotomous variable)		n86	education
44	1/0	Availability of tertiary educational organizations in art and design: includes areas related to fine arts, music, theater, design, fashion and other creative specialties (dichotomous variable)		n87	education
45	1/0	Availability of tertiary educational organizations in business and management: includes areas related to economics, finance, marketing, management, entrepreneurship and other business specialties (dichotomous variable)		n88	education
46	1/0	Availability of tertiary educational organizations in law and jurisprudence: includes areas related to law, jurisprudence, international law and other legal specialties (dichotomous variable)		n89	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
47		Number of schools	thous.	n90	education
		Number of tertiary educational organizations	thous.	n91	education
48	(n92+n93)/(n90+n91)*100	Number of educational organizations that have electronic information terminals available to students (school education)	thous.	n92	education
		Number of educational organizations that have electronic information terminals available to students (tertiary education)	thous.	n93	education
49	(n94+n95)/(n90+n91)*100	Number of educational organizations equipped with multimedia projectors (school education)	thous.	n94	education
		Number of educational organizations equipped with multimedia projectors (tertiary education)	thous.	n95	education
50	(n96+n97)/(n90+n91)*100	Number of educational organizations equipped with interactive whiteboards and other modern demonstration equipment (school education)	thous.	n96	education
		Number of educational organizations equipped with interactive whiteboards and other modern demonstration equipment (tertiary education)	thous.	n97	education
51	n98/n91*100	Number of educational organizations equipped with equipment, facilities and laboratories according to the profile of education (tertiary education)	thous.	n98	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
52	n99/n90*100	Number of educational organizations using AI in the educational process (school education)	thous.	n99	education
		Number of educational organizations using AI in the educational process (tertiary education)	thous.	n100	education
53		Number of tertiary educational organizations using virtual technologies in the educational process	thous.	n101	education
54	(n102+n103)/(n90 +n91)*100	Number of educational organizations using cloud technologies in the educational process (school education)	thous.	n102	education
		Number of educational organizations using cloud technologies in the educational process (tertiary education)	thous.	n103	education
55	(n104+n105)/(n90 +n91)*100	Number of educational organizations that have educational programs or individual modules in a distance format (school education)	thous.	n104	education
		Number of educational organizations that have educational programs or separate modules in distance format (tertiary education)	thous.	n105	education
56	(n106+n107)/(n90 +n91)*100	Number of educational organizations using distributed databases in the management and evaluation system (school education)	thous.	n106	education
		Number of educational organizations using distributed databases in management and evaluation system (tertiary education)	thous.	n107	education

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
57	(n108+n109)/(n90 +n91)*100	Number of educational organizations using big data for analysis and quality control of education (school education)	thous	n108	education
		Number of educational organizations using big data for analysis and control of education quality (tertiary education)	thous	n108	education
58	n98/n91*100	Number of tertiary educational organizations where foreign students study	thous.	n110	education
59	n111/n8*100	Number of foreign students	thous.	n111	education
60		Number of fields of study for international students (out of 8: natural, technical, medicine and health care, humanities, social sciences, art and design, business and management, law and jurisprudence)	from 0 to 8	n112	education
61	evaluation of city representatives	Share of tertiary educational organizations that have joint educational programs and projects with employers of the city	%	n113	education
62	evaluation of city representatives	Share of large employers that have their own corporate universities and other educational units for training employees	%	n114	labor market or education
63	1/0	Availability in the city of permanent programs and projects financed from the state or municipal budget that study the demand of the labor market and employers and translate this demand into the education system (dichotomous variable)		n115	labor market

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
64	evaluation of city representatives	Number of laureates of international prestigious competitions in science for the last 20 years (Nobel, Templeton, Fields, Lasker, Breakthru, Einstein, Gates, Darwin, Kiosaki, Turing, etc.)	(people)	n116	general
65		Number of scientific organizations in the city		n117	science
66	1/0	Variability of science development directions (scientific organizations) in the city – availability of scientific organizations in the following directions: natural sciences, engineering and technology, medical and health sciences, agricultural sciences, social sciences, humanities. (dichotomous variable for each field)	figure from 0 to 6	n118	science
67	1/0	Availability of research orders from city authorities to scientific organizations located in the city (dichotomous variable)		n119	science
70	evaluation of city representatives	Share of expenditures on scientific research and scientific organizations in the general city budget	%	n120	finance
71	evaluation of city representatives	Number of scientific organizations with educational subdivisions	Units	n121	science

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
72	1/0	Availability of grant programs and other projects financed from the city budget that encourage joint activities of educational and scientific organizations (dichotomous variable)		n122	science
73		Number of scientific journals refereed in authoritative scientific databases (Scopus, Web of Science) published in the city		n123	science
74	1/0	Availability of financial support from the city budget for major scientific international events (dichotomous variable)		n124	urban governance and policy
75	1/0	Availability of special zones (urban educational spaces) in the city financed from the city and/or federal budget and aimed at promoting science and developing creative, research and design activities of young people in progressive technical direction (dichotomous variable)		n125	environment
76	1/0	Availability of educational programs created or supported by the city and using the objects of the urban environment (parks, museums, etc.) as an educational space (preschool education)		n126	urban governance and policy
	1/0	Availability of educational programs created or supported by the city and using urban environment objects (parks, museums, etc.) as an educational space (school education)		n127	urban governance and policy

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
	1/0	Availability of educational programs created or supported by the city and using the objects of the urban environment (parks, museums, etc.) as an educational space (tertiary education)		n128	urban governance and policy
77	1/0	Availability of educational programs that use urban infrastructure (hospitals, banks, train stations, etc.) as an educational space		n129	education
78	calculation in accordance with the ILO international methodology	Share of employed persons in the total population, %		n130	labor market
79	calculation in accordance with the ILO international methodology	Unemployment rate, %		n131	labor market
80	calculation in accordance with the ILO international methodology	Informal employment, %		n132	labor market

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
81	calculation in accordance with the ILO international methodology	Working poor, %		n133	labor market
82	calculation in accordance with the ILO international methodology	Share of employed with low wages (below 2/3 of median hourly earnings), %		n134	labor market
83	calculation in accordance with the ILO international methodology	Share of employed with excessive working hours (more than 48 hours per week; "actual" number of hours), %		n135	labor market
84	calculation in accordance with the ILO international methodology	Segregation in occupations (professions) by gender		n136	labor market
85	calculation in accordance with the ILO international methodology	Gender gap in wages, %		n137	labor market
86	calculation in accordance with the ILO international methodology	Rate of fatal occupational injuries (per 100,000 working people)		n138	labor market
87	calculation in accordance with the ILO international methodology	Non-fatal occupational injury rate (per 100,000 working people)		n139	labor market
88	calculation in accordance with the ILO international methodology	Share of the population receiving pensions (insurance pensions), as a % of the total population		n140	labor market
89	calculation in accordance with the ILO international methodology	Healthcare expenditures financed outside personal expenditures of households, %		n141	labor market

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
90	calculation in accordance with the ILO international methodology	Share of employed persons in the total number of youth, %		n142	labor market
91	calculation in accordance with the ILO international methodology	Unemployment rate among youth, %		n143	labor market
92	calculation in accordance with the ILO international methodology	Youth who are neither studying nor working aged 15-24 years in the total population of the relevant age group (NEET), %		n144	labor market
93	calculation in accordance with the ILO international methodology	Child labor (according to Resolution adopted at the 18th ICCT) (S), (share of employed among persons aged 5-17 years, %)		n145	labor market
94	calculation in accordance with the ILO international methodology	Share of children engaged in hazardous work among persons aged 5-17 years, %		n146	labor market
95	1/0	Presence of special structures or units in the municipal government system that promote youth employment (dichotomous variable)		n147	labor market
96	1/0	Presence in the city of permanent programs and projects financed from the state or municipal budget that promote youth employment (dichotomous variable)		n148	labor market
97	1/0	Presence of special structures or units in the municipal government system dealing with youth career guidance (dichotomous variable)		n149	labor market

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
98	1/0	Availability in the city of permanent programs and projects financed from the state or municipal budget that promote information and professional orientation of young people (dichotomous variable)		n150	labor market
99	1/0	Presence of recurrent urban activities financed from the state or municipal budget that promote career guidance and employment of young people (dichotomous variable)		n151	labor market
100	1/0	Availability of special zones (urban educational spaces) in the city, financed from the city and/or federal budget and aimed at promoting career guidance of youth and increasing their employment (dichotomous variable)		n152	labor market
101	evaluation of city representatives	Number of registered startups and new businesses over the last 3 years	Units	n153	labor market
102	evaluation of city representatives	Share of the self-employed in the total number of employed in the city economy	%	n154	labor market
103	evaluation of city representatives	Share of organizations and enterprises using remote or combined forms of work for their employees	%	n155	labor market

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
104	calculation in accordance with the ILO international methodology	Share employed in the economy on a part-time basis	%	n156	labor market
105	n142/130	Share of youth using smart city technologies in their activities	%	n157	labor market
106	evaluation of city representatives	Share of investments in the development of the digital economy to the city's GDP	%	n158	finance
107	1/0	Availability of urban digital platforms and services for job search (dichotomous variable)		n159	digital technologies
108	evaluation of city representatives	Share of organizations and enterprises using digital portfolios in the unified city information system	%	n160	digital technologies
109	1/0	Availability of special information resources focused on city residents and providing data on the labor market situation (dichotomous variable)		n161	digital technologies
110	1/0	Availability of educational programs to improve digital skills, for citizens, financed from the city budget (dichotomous variable)		n162	digital technologies
111	n163/n1/10000	Number of employees of scientific organizations and specialists involved in scientific projects	thous. people	n163	science
112	n164/n1/10000	Number of patents and results of intellectual activity in the last year		n164	science
115	evaluation of city representatives	Share of employees in the innovation sector in the total number of employees in the economy	%	n165	labor market

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
117	evaluation of city representatives	Share of high-tech sector revenues in GRP	%	n166	finance
118	1/0	Availability of programs and projects financed from the city budget that support the implementation and promotion of innovative projects (dichotomous variable)		n167	digital technologies
120	1/0	Availability of city-supported or city-funded educational programs in innovation for schools and tertiary programs (dichotomous variable)		n168	digital technologies
121	1/0	Availability of programs implementing the Internet of Things (IoT) in the city infrastructure, financed from the city budget (dichotomous variable)		n169	digital technologies
122	1/0	Use of big data in analyzing the performance of urban infrastructure (dichotomous variable)		n170	digital technologies
123	1/0	Application of Artificial Intelligence (AI): application of machine learning algorithms and neural networks to automate processes and decision-making in the operational management of urban infrastructure (dichotomous variable)		n171	digital technologies
124	1/0	Presence of Smart Cities elements: energy management, smart parking or smart security systems (dichotomous variable)		n172	digital technologies

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
125	1/0	Utilization of robots to automate tasks in urban infrastructure (dichotomous variable)		n173	digital technologies
126	1/0	Utilization of drones (unmanned aerial vehicles) for various purposes, such as monitoring transportation infrastructure, delivering packages, or monitoring urban environments. (dichotomous variable)		n174	digital technologies
127	1/0	Utilization of blockchain technologies in urban infrastructure (dichotomous variable)		n175	digital technologies
128	1/0	Use of smart city technologies/municipal intelligent systems in medicine (dichotomous variable)		n176	digital technologies
129	1/0	Utilization of smart city technologies / municipal intelligent systems in education (dichotomous variable)		n177	digital technologies
130	1/0	Utilization of smart city technologies / municipal intelligent systems in governance (dichotomous variable)		n178	digital technologies
131	1/0	Utilization of smart city technologies / municipal intelligent systems in the housing and utilities sector (dichotomous variable)		n179	digital technologies
132	1/0	Utilization of smart city technologies / municipal intelligent systems in the transport sector (dichotomous variable)		n180	digital technologies

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
133	1/0	Utilization of smart city technologies in environmental protection activities, ecology programs (dichotomous variable)		n181	digital technologies
134	1/0	Utilization of smart city technologies / municipal intelligent systems in law enforcement and citizen protection (dichotomous variable)		n182	digital technologies
135	1/0	Utilization of smart city technologies / municipal intelligent systems in banking and finance (dichotomous variable)		n183	digital technologies
136	1/0	Financing at the expense of the city budget in the last three years of programs for the development and dissemination of smart city technologies (dichotomous variable)		n184	digital technologies
137	n185/n1*100	Number of people who have used any of the city's digital infrastructure (municipal digital products and services) in the last calendar year	%	n185	digital technologies
138	n186/n28*100	Number of schoolchildren using the city's digital infrastructure in education		n186	digital technologies
139	evaluation of city representatives	Share of the population using digital infrastructure in the healthcare sector	%	n187	digital technologies

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
140	evaluation of city representatives	Share of youth using personalized urban services, utilizing or fully based on digital technologies	%	n188	digital technologies
141	evaluation of city representatives	Share of citizens over 60 years old using personalized urban services, utilizing or fully based on digital technologies		n189	digital technologies
142	evaluation of city representatives	Share of the population using personalized urban services, utilizing or fully based on digital technologies		n190	digital technologies
143	1/0	Availability of personalized urban services, utilizing or fully based on digital technologies in the education sector (dichotomous variable)		n191	digital technologies
144	1/0	Availability of personalized urban services, utilizing or fully based on digital technologies in the healthcare sector (dichotomous variable)		n192	digital technologies
145	1/0	Availability of personalized urban services, utilizing or fully based on digital technologies in the housing and utilities sector (dichotomous variable)		n193	digital technologies
146	1/0	Availability of personalized urban services, utilizing or fully based on digital technologies in the tax sphere (dichotomous variable)		n194	digital technologies

No.	Calculation formula	Calculation decryption	Dimension	Primary indicator number	Sector
147	1/0	Availability of personalized urban services, utilizing or fully based on digital technologies in urban governance (dichotomous variable)		n195	digital technologies
148	1/0	Availability of online services (remote services) for citizens (dichotomous variable)		n196	digital technologies
149	1/0	Financing and support by city authorities of educational programs to train certain vulnerable categories of citizens in digital technologies (elderly, unemployed, etc.) (dichotomous variable)		n197	digital technologies
150	1/0	Availability of free access points to digital infrastructure and the Internet as part of the provision of urban services, e.g., document processing, information retrieval, etc. (dichotomous variable)		n198	digital technologies

Calculation of subrankings – longlist of cities

City	Education		Labor market		Technologies	
	Place	Score	Place	Score	Place	Score
Moscow	1	0,042	1	0,076	3	0,172
Hong Kong	2	0,038	2	0,074	2	0,174
Shanghai	7	0,027	3	0,074	1	0,185
Mexico City	8	0,026	5	0,070	5	0,148
Guangzhou	10	0,024	4	0,072	9	0,140
Kuala Lumpur	61	0,014	52	0,047	4	0,170
Buenos Aires	33	0,021	10	0,062	7	0,143
Guadalajara	12	0,023	6	0,068	13	0,134
Quezon City (NCR)	24	0,022	8	0,066	11	0,138
Abu Dhabi	9	0,025	12	0,060	10	0,140
Beijing	6	0,028	7	0,066	15	0,129
Manila (NCR)	13	0,023	25	0,055	6	0,143
São Paulo	5	0,028	11	0,061	14	0,131
Dubai	28	0,021	16	0,058	8	0,141
Chongqing	4	0,029	9	0,065	16	0,124
Shenzhen	3	0,032	26	0,055	17	0,117
Cordoba	43	0,019	72	0,044	12	0,137
Astana	31	0,021	13	0,060	18	0,115
Mumbai (Maharashtra)	34	0,021	18	0,057	19	0,114
Istanbul	23	0,022	15	0,058	20	0,108
Montevideo	46	0,019	36	0,052	21	0,105
Saint Petersburg	14	0,023	19	0,057	24	0,072
Riyadh (Al Riyadh)	67	0,012	35	0,052	22	0,080
Almaty	22	0,022	23	0,055	27	0,066
Santiago	17	0,023	45	0,049	25	0,068

Calculation of subrankings – longlist of cities

City	Education		Labor market		Technologies	
	Place	Score	Place	Score	Place	Score
Kazan	18	0,022	24	0,055	30	0,057
Krasnoyarsk	39	0,020	41	0,050	28	0,062
Davao City	78	0,011	58	0,046	23	0,074
Rosario	25	0,022	30	0,052	35	0,054
Nairobi	68	0,012	21	0,057	31	0,057
Bogota	73	0,012	61	0,045	26	0,068
Caloocan	79	0,011	14	0,058	33	0,056
Minsk	45	0,019	32	0,052	38	0,053
Monterrey	20	0,022	38	0,051	40	0,051
Ankara	48	0,019	59	0,046	29	0,059
Nezahualcóyotl/ Ciudad Nezahualcoyotl	26	0,021	34	0,052	43	0,050
Juárez	27	0,021	31	0,052	44	0,049
Samara	35	0,021	37	0,052	42	0,050
León/Leon de los Aldama	54	0,017	28	0,053	39	0,052
Peshawar	71	0,012	22	0,056	36	0,054
Mexicali	21	0,022	50	0,047	41	0,051
Novosibirsk	29	0,021	43	0,049	45	0,048
Yekaterinburg	41	0,020	71	0,044	34	0,055
Culiacán	36	0,021	42	0,050	47	0,046
Ecatepec	37	0,021	17	0,057	54	0,039
Johannesburg	16	0,023	20	0,057	58	0,037
Brasilia	11	0,024	55	0,046	52	0,040
Durban (KwaZulu-Natal)	59	0,014	87	0,038	32	0,056
Bengaluru (Karnataka)	32	0,021	80	0,041	50	0,045

Calculation of subrankings – longlist of cities

City	Education		Labor market		Technologies	
	Place	Score	Place	Score	Place	Score
Tijuana	98	0,007	33	0,052	46	0,048
Jakarta	15	0,023	54	0,046	55	0,038
Cape Town (Western Cape)	38	0,021	51	0,047	53	0,039
Puebla	97	0,008	29	0,052	51	0,045
Lahore (Punjab)	74	0,012	81	0,039	37	0,054
Cairo	49	0,018	85	0,038	48	0,046
Tashkent	30	0,021	77	0,042	59	0,036
Querétaro/Santiago de Queretaro	96	0,008	57	0,046	49	0,046
Lagos	64	0,013	46	0,048	56	0,037
Jeddah (Mecca)	63	0,013	47	0,048	60	0,036
Addis Ababa	47	0,019	27	0,053	67	0,025
Zapopan	95	0,008	40	0,051	57	0,037
Islamabad	57	0,015	39	0,051	65	0,028
Karachi (Sindh)	66	0,012	53	0,047	62	0,034
Fortaleza	50	0,018	70	0,044	63	0,031
Izmir	53	0,017	91	0,037	61	0,036
Rio de Janeiro	58	0,015	44	0,049	68	0,025
Gaziantep	51	0,018	83	0,039	64	0,030
Salvador	19	0,022	67	0,044	74	0,020
Dushanbe	60	0,014	60	0,046	69	0,024
Faisalabad (Punjab)	70	0,012	63	0,045	70	0,023
Santa Cruz de la Sierra	40	0,020	68	0,044	76	0,017
Caracas	82	0,010	65	0,045	71	0,023
Quetta	65	0,013	84	0,039	66	0,025
Belo Horizonte	62	0,014	48	0,048	77	0,015

Calculation of subrankings – longlist of cities

City	Education		Labor market		Technologies	
	Place	Score	Place	Score	Place	Score
Maracaibo	87	0,009	65	0,045	73	0,020
Dakar	69	0,012	62	0,045	79	0,013
Tehran	72	0,012	49	0,047	81	0,011
Adana	55	0,016	93	0,035	75	0,018
Dhaka	90	0,009	69	0,044	78	0,013
Damascus	42	0,020	78	0,042	90	0,003
Medina	76	0,012	76	0,043	82	0,010
Delhi (NCT)	94	0,008	97	0,032	72	0,023
Medellin	80	0,011	73	0,043	84	0,009
Khulna	81	0,011	79	0,042	83	0,009
Ibadan	77	0,011	56	0,046	88	0,004
Mecca	75	0,012	74	0,043	87	0,006
Antalya	56	0,015	94	0,035	86	0,007
Pretoria	52	0,018	98	0,031	85	0,008
Aleppo	44	0,019	95	0,033	89	0,004
Maracay	91	0,009	65	0,045	96	0,000
Barranquilla	89	0,009	75	0,043	96	0,000
Alexandria	83	0,009	100	0,030	80	0,012
Valencia	92	0,009	82	0,039	96	0,000
Cali	84	0,009	86	0,038	96	0,000
Chittagong	85	0,009	88	0,037	96	0,000
Kolkata (West Bengal)	86	0,009	89	0,037	96	0,000
Kano	99	0,007	90	0,037	96	0,000
Giza	93	0,008	96	0,033	91	0,003
Managua	100	0,007	92	0,036	96	0,000
Chennai (Tamil Nadu)	88	0,009	99	0,030	96	0,000

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