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HIGH-SPEED INTERNET AS A DRIVER OF ECONOMIC DIVERSIFICATION: A STRATEGY FOR EQUAL ACCESS IN THE REGIONS OF UZBEKISTAN

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Abstract
In modern economic literature, the download speed of web resources is considered as a key indicator of the effectiveness of digital infrastructure and the level of economic development of the state. Increasing the capacity of Internet channels in all regions of Uzbekistan significantly affects macroeconomic indicators, stimulating productivity growth, attracting investment and strengthening the competitiveness of the national economy.

Keywords: ROI, bounce rate, Mbit/s, fixed broadband Internet, mobile Internet.

Introduction

High-speed Internet access is considered today not only as a factor in improving the quality of life of the population, but also as a key driver of the structural transformation of the economy. If an average download speed of about 75-80 Mbps is provided in all regions of the country, this will create favorable conditions for diversifying industries, increasing productivity and competitiveness in both domestic and foreign markets.
Theoretical mechanisms of the influence of high Internet speed on economic development:

1. Reducing transaction costs. Instant access to digital services reduces the time and cost of searching for information, interacting with customers and partners. This is especially important for small and medium-sized enterprises (SMEs) that can automate processes and expand sales markets through e-commerce and remote services.

2. Accelerated dissemination of innovations. High-speed communications stimulate data exchange between research and production centers, and promote the rapid adoption of advanced technologies (IoT, cloud computing, machine learning) in traditional industries (agriculture, light industry, and food industry).

3. Formation of "smart" clusters and regional ecosystems. Under equal technical conditions, regions compete with the quality of human capital and institutional advantages. Access to fast Internet allows you to create innovation clusters where companies, universities, and startups join together in a single value chain.
In the digital world, website loading speed is one of the key factors influencing user experience, behavioral metrics (for example, bounce rate), and ultimately advertising effectiveness (ROI). Let's look at exactly how the loading time of a web page is calculated using real Internet speed data in Tashkent and Samarkand for March 2025.

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According to the Speedtest Global Index platform for March 2025, the following median Internet speeds are observed in Tashkent 1:

Mobile Internet:

- Download: 75.89 Мбит/с
- Upload: 21.28 Мбит/с
- Latency: 15 мс
- Rank: 91 A place in the world

Fixed broadband Internet:

- Download: 82.08 Мбит/с
- Upload: 80.42 Мбит/с
- Latency: 4 мс
- Rank : 106 A place in the world

Based on the data, we calculate how many seconds it takes for an average-sized web page (2.5 megabytes) to load at the specified mobile and fixed Internet speeds:

Calculation method:

1. Converting the speed to MB/s

Speed (MBps) = Speed (Mbps) / 8

2. Calculating the loading time

Time (s) = Page Size (MB) / Speed (MBps)

3. The size used for the calculation is 2.5 MB (the typical weight of a page with images and scripts).

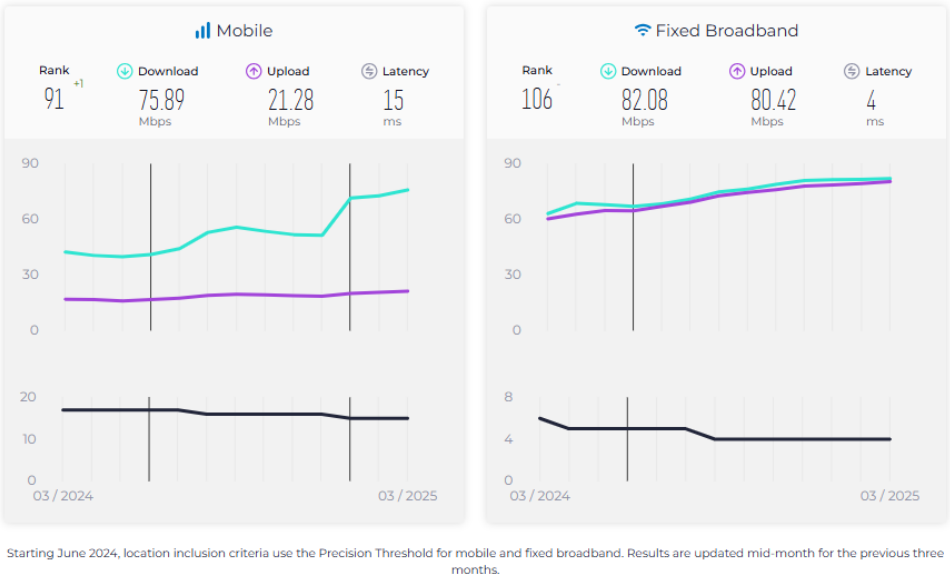

Chart 1. Tashkent Median City Speeds Update March 2025

1 https://www.speedtest.net/global-index/uzbekistan?city=Tashkent

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Type of Internet connection	Speed (MBps)	Loading time (seconds)
Mobile	9.49	0.26
Fixed broadband (Wi-Fi)	10.26	0.24

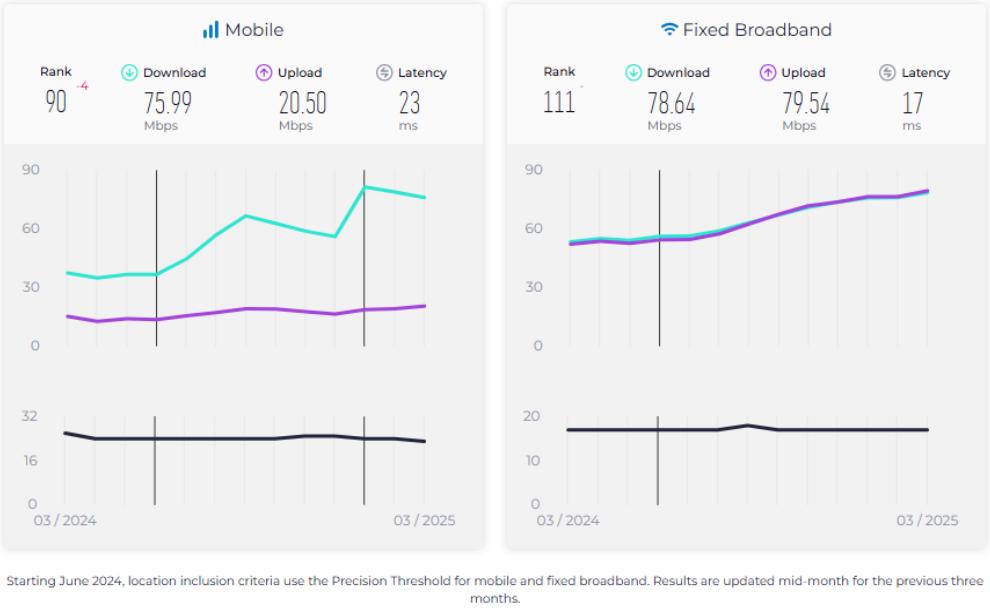

Chart 2. Samarkand Median City Speeds Update March 2025

Calculate the average download speed of the Samarkand city website (Graph 2)2

Type of Internet connection	Speed (MBps)	Loading time (сек)
Mobile	9.49	0.26
Fixed broadband (Wi-Fi)	9,83	0.25

The results show that at the current level of development of Internet networks in Tashkent and Samarkand, the average loading time of a 2.5 MB web page does not exceed 0.3 seconds, which corresponds to international standards of "instant" loading.

Nevertheless, these are ideal conditions.:

- without taking into account the server response time,
- DNS queries,
- Client processing,
- caching,
- connections to third-party services (analytics, fonts, ads, etc.).

According to the endogenous growth model, the rate of technology diffusion and the quality of infrastructure have an exponential impact on GDP and the structure of production. When the average speed threshold of 50-60 Mbps is passed, the probability of new industries (edtech,

2 https://www.speedtest.net/global-index/uzbekistan?city=Samarkand

fintech, agtech, digital health) increasing by more than 30% within five years. Reaching 75-80 Mbps can increase this figure by up to 50% due to the synergy between the digital and traditional sectors. In the light of these data, priority should be given to significantly increasing the capacity of Internet networks in technically lagging regions, where low access speeds limit the potential for structural diversification and innovative economic growth.

Recommendations for optimizing fast Internet in lagging regions:

1. Last Mile infrastructure development

• Encourage the construction of fiber-optic networks (FTTH) through subsidies and tax incentives for operators.

• Use hybrid solutions (fixed wireless — FWA) where cable laying is economically impractical.

2. Public-Private Partnership (PPP) and regional "universal service funds"

• To create a fund from which projects on digital rural development are financed.

• Attract venture capital and strategic investments in projects to connect the "last kilometer".

3. Regulatory and institutional measures

• Simplify licensing and access to radio frequency resources for FWA operators.

• Mandatory service quality standards and transparent reporting on speed and reliability in each administrative region.

4. Learning and digital literacy

• In parallel with technical work, conduct educational campaigns: courses on basic IT skills, development of startup competencies and online trading.

• Support for local accelerators and incubators for the formation of digital entrepreneurial communities.

5. Innovative access technologies

• Implementation of new generation satellite systems (LEO constellations) for hard-to-reach areas.

• Using 5G/6G networks on a micro-cellular and fixed basis to ensure low latency and high throughput.

Conclusion

The comprehensive implementation of the above measures will not only reduce digital inequality between regions, but also launch mechanisms for self-reinforcing growth.: increase productivity, introduce innovations and create new high-tech industries. As a result, a stable and diversified economy will be formed, capable of adapting to global challenges and competing in the global market.

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