

MUHANDISLIK

& IQTISODIYOT

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*Ijtimoiy-iqtisodiy, innovatsion texnik,
fan va ta'limga oid ilmiy-amaliy jurnal*

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- 05.01.02 – Tizimli tahlil, boshqaruv va axborotni qayta ishlash
- 05.01.03 – Informatikaning nazariy asoslari
- 05.01.04 – Hisoblash mashinalari, majmualari va kompyuter tarmoqlarining matematik va dasturiy ta'minoti
- 05.01.05 – Axborotlarni himoyalash usullari va tizimlari. Axborot xavfsizligi
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- 05.01.11 – Raqamli texnologiyalar va sun'iy intellekt
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- 05.02.08 – Yer usti majmualari va uchish apparatlari
- 05.03.02 – Metrologiya va metrologiya ta'minoti
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- 05.05.05 – Issiqlik texnikasining nazariy asoslari
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- 05.06.01 – To'qimachilik va yengil sanoat ishlab chiqarishlari materialshunosligi
- 05.08.03 – Temir yo'l transportini ishlatish
- 05.08.06 – "G'ildirakli va gusenisali mashinalar va ularni ishlatish" (texnika fanlari)
- 05.09.01 – Qurilish konstruksiyalari, bino va inshootlar
- 05.09.04 – Suv ta'minoti. Kanalizatsiya. Suv havzalarini muhofazalovchi qurilish tizimlari
- 10.00.06 – Qiyosiy adabiyotshunoslik, chog'ishtirma tilshunoslik va tarjimashunoslik
- 10.00.04 – Yevropa, Amerika va Avstraliya xalqlari tili va adabiyoti
- 08.00.01 – Iqtisodiyot nazariyasi
- 08.00.02 – Makroiqtisodiyot
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- 08.00.11 – Marketing
- 08.00.12 – Mintaqaviy iqtisodiyot
- 08.00.13 – Menejment
- 08.00.14 – Iqtisodiyotda axborot tizimlari va texnologiyalari
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MUNDARIJA

AHOLI DAROMADLARI VA TURMUSH DARAJASI: O'ZARO BOG'LIQLIK NAZARIYASI	9
Abidova Shahnoza Abduvaliyevna	
THE IMPACT OF BUY NOW, PAY LATER SERVICES ON E-COMMERCE SALES	12
Maxmudova Munisaxon Abbos qizi	
ROUTE-LEVEL PROFITABILITY ZONES IN RAILWAY PASSENGER TRANSPORT	16
Eshboyev Ulugbek Farxodovich	
AHOLI DAROMADLARI VA TURMUSH DARAJASI: O'ZARO BOG'LIQLIK NAZARIYASI	20
Abidova Shahnoza Abduvaliyevna	
ОПЕРАЦИОННАЯ ЭФФЕКТИВНОСТЬ КАК ДРАЙВЕР ESG-ТРАНСФОРМАЦИИ ПРЕДПРИЯТИЙ ПОЛИМЕРНОЙ УПАКОВКИ В УСЛОВИЯХ РАЗВИВАЮЩИХСЯ ЭКОНОМИК: ЭМПИРИЧЕСКОЕ ОБОСНОВАНИЕ НА ПРИМЕРЕ ООО «SIRDARYO MEGA LUKS»	23
Ташпулатов Дильмурад Рустамович	
PREPARING STATE-OWNED COMMERCIAL BANKS FOR PRIVATIZATION: INSTITUTIONAL TRANSFORMATION, CORPORATE GOVERNANCE, AND CAPITAL MARKET READINESS IN UZBEKISTAN..	28
Salamov Islam Tashkazakovich	
RAQAMLI TO'LOVLAR ORQALI YASHIRIN IQTISODIYOT KO'LAMINI QISQARTIRISH: XITOIY TAJRIBASI VA MAKROFISKAL SABOQLAR	34
Shonazarov Ashurali Akabayevich	
DIGITAL FACTORS INFLUENCING THE DEVELOPMENT OF THE SERVICE SECTOR IN TASHKENT CITY	37
Abdikayumov Bekzod Turdiniyozovich	
METALLARGA MEXANIK ISHLOV BERISH JARAYONLARINI KOMPYUTER MODELLASHTIRISH ASOSIDA OPTIMALLASHTIRISH VA SAMARADORLIGINI OSHIRISH	41
Usmonov Abbos Valijon o'g'li	
IMPROVING THE MECHANISM FOR EXPERT ASSESSMENT AND CERTIFICATION OF FOOD SAFETY BASED ON QUESTIONNAIRE SURVEYS	45
Mahamatova Maftuna Shukrullo qizi	
BEYOND FINANCIAL METRICS: RAILWAY TRANSPORT EFFICIENCY	48
Kurambayev Alisher Saburbayevich	
TRANSFORMATSIYALASHUV SHAROITIDA TIJORAT BANKLARINING KREDIT PORTFELINI BOSHQARISHNING NAZARIY ASOSLARI	53
Jo'rayev Eldor Berdibekovich	
OPTIMIZING SCHOOL MANAGEMENT THROUGH TERRITORIAL CLUSTERING TO ENSURE AN INCLUSIVE EDUCATION ENVIRONMENT: INTERNATIONAL EVIDENCE AND AN IMPLEMENTATION FRAMEWORK FOR UZBEKISTAN	58
Rajapova Guldona Usman kizi	
OPTIMIZATION OF THE FOOD SUPPLY AND DELIVERY SYSTEM IN TASHKENT REGION	62
Mavlanov Sobirjon Pardabayevich	
RAQAMLI BANK EKOTIZIMIDA SUN'IY INTELLEKT VA KATTA MA'LUMOTLAR ASOSIDA MIJOZLARGA XIZMAT KO'RSATISH MODELINI TAKOMILLASHTIRISH	65
Eshqobulova Charos O'roq qizi	
RAQAMLI MOLIVAVIY MUHITDA BANK MIJOZLARINING XAVFSIZ XULQ-ATVORI VA MOLIVAVIY KOMPETENSIYALARINI SHAKLLANTIRISH	67
Eshqobulova Charos, Babanazarova Gulzar	
ASSESSING DIGITAL ADAPTATION IN SMALL BUSINESSES IN THE REPUBLIC OF KARAKALPAKSTAN.	70
Babanazarova Gulzar Ziuatdinovna	

ASSESSING DIGITAL ADAPTATION IN SMALL BUSINESSES IN THE REPUBLIC OF KARAKALPAKSTAN



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Abstract. This paper evaluates the level of digital adaptation among small business entities in the Republic of Karakalpakstan as of September 2026, examining the digital service infrastructure and its contribution to regional economic development. Based on current statistical and empirical evidence, the study analyzes the degree of business digitalization, IT service dynamics, e-commerce, digital skill development priorities, and existing structural constraints.

Keywords: digital adaptation, small business, digital economy, Republic of Karakalpakstan, IT Park, market services, technological efficiency.

Annotatsiya. Ushbu tezisda 2026-yil sentabr holatiga ko'ra Qoraqalpog'iston Respublikasidagi kichik biznes subyektlarining raqamli moslashuv darajasi baholanib, raqamli xizmatlar infratuzilmasi hamda uning hududiy iqtisodiy rivojlanishga qo'shayotgan hissassi tahlil qilinadi. Amaldagi statistik va empirik ma'lumotlar asosida biznesni raqamlashtirish darajasi, IT xizmatlari dinamikasi, elektron tijorat, raqamli ko'nikmalarni rivojlantirish ustuvor yo'nalishlari hamda mavjud tarkibiy cheklovlar o'rganiladi.

Kalit so'zlar: raqamli moslashuv, kichik biznes, raqamli iqtisodiyot, Qoraqalpog'iston Respublikasi, IT Park, bozor xizmatlari, texnologik samaradorlik.

Аннотация. В данной работе оценивается уровень цифровой адаптации субъектов малого бизнеса в Республике Каракалпакстан по состоянию на сентябрь 2026 года, а также рассматриваются инфраструктура цифровых услуг и её вклад в региональное экономическое развитие. На основе актуальных статистических и эмпирических данных анализируются уровень цифровизации бизнеса, динамика IT-услуг, электронная коммерция, приоритеты развития цифровых навыков и существующие структурные ограничения.

Ключевые слова: цифровая адаптация, малый бизнес, цифровая экономика, Республика Каракалпакстан, IT Park, рыночные услуги, технологическая эффективность.

Today, in the modernization of national and regional economies, digitalization has moved beyond simple automation and has become a stage of profound technological renewal that supports business efficiency and competitiveness. Within the framework of the “Digital Uzbekistan – 2030” Strategy, the latest amendments introduced in 2026, and related regulatory legal acts, the country has set targets to increase the share of electronic public services to more than 90%, expand the coverage of fiber-optic communication lines to 99%, and widely introduce artificial intelligence technologies across economic sectors [4].

In the Republic of Karakalpakstan, the adaptation of small businesses to digital technologies and the introduction of modern service solutions are also regarded as regional development drivers within the socioeconomic development programmes planned for 2026. Digital adaptation in small entrepreneurship creates opportunities not only to reduce financial and operating costs, but also to bring products and services more effectively to domestic and foreign markets [1]. Therefore, a comprehensive assessment of digital adaptation trends and infrastructure outcomes in Karakalpakstan's small business sector as of September 2026 is of scientific and practical importance.

According to Resolution No. PQ-70 of the President of the Republic of Uzbekistan dated 21 February 2026, the priority objectives for the Republic of Karakalpakstan include increasing gross regional product (GRP) by 8.1% and industrial output by 8.0% by the end of 2026, as well as implementing investment projects worth USD 7.2 billion by 2030 [6].

According to official data published by the Statistics Department of the Republic of Karakalpakstan for



January–June 2026, the region's economic growth indicators show positive dynamics:

- Gross regional product (GRP): 110.2%;
- Industrial production: 107.5%;
- Market services: 116.4%;
- Retail trade turnover: 128.8%;
- Construction work: 142.9%;
- Permanent population as of 1 July 2026: 2,061,488 people [5].

In the market services sector, which provides a foundation for digital adaptation, the volume of services provided by small businesses and private entrepreneurs in the Republic of Karakalpakstan reached UZS 11,892.1 billion in January–May 2026, with a growth rate of 113.5%. Small businesses and private entrepreneurs accounted for 70.6% of the total volume of market services in the region [2].

The rapid development of information and communication technology (ICT) and computer programming services in the country is providing small businesses with new digital tools. In January–May 2026, the volume of information and communication services in Uzbekistan reached UZS 39,024.8 billion, recording growth of 122.2%. Within this sector, computer programming and consulting services amounted to UZS 17,977.0 billion, or 46.1% of all information and communication services, indicating substantial demand for digital products [2].

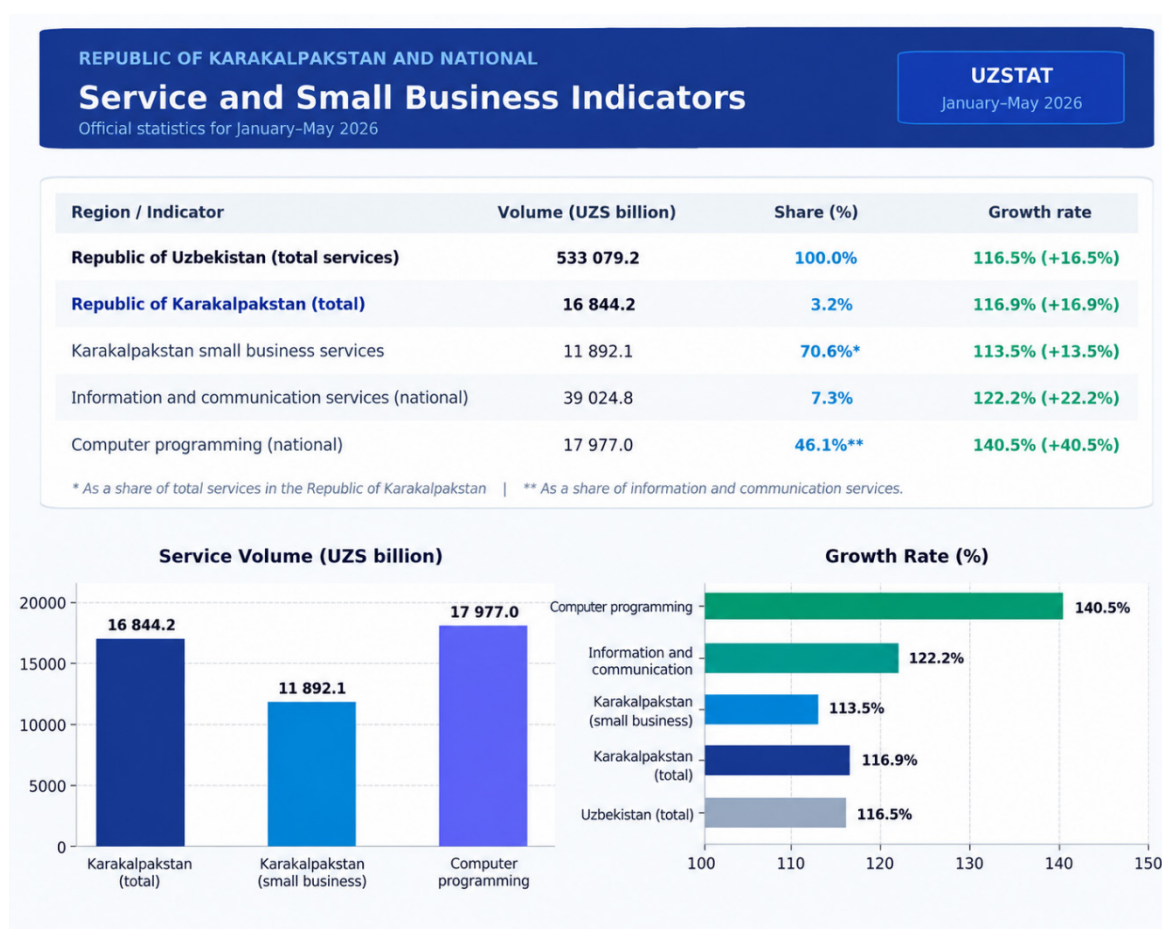


Figure 1. Key Market Service and Small Business Indicators in the Republic of Karakalpakstan, January–May 2026¹

According to a survey conducted by the Center for Economic Research and Reforms jointly with the Chamber of Commerce and Industry and reported in September 2026, more than 5,000 entrepreneurs from all regions of Uzbekistan participated in the survey. The findings indicate that businesses are increasingly moving towards technological efficiency through the use of electronic payments, online sales, and other digital technologies [3]. In Karakalpakstan, the growing number of IT Park residents and digital marketing and e-commerce training sessions for women and young people supported by the OSCE and UNDP are strengthening ecosystem resilience [1].

The analysis identifies several areas that require further improvement in deepening digital adaptation

¹ Source: National Statistics Committee of Uzbekistan [2].

among small businesses in Karakalpakstan:

- Uneven quality of digital infrastructure in remote districts. In some rural districts, the current level of high-speed fiber-optic internet coverage may constrain the wider use of e-commerce and online billing systems [1].
- The adoption of ERP and automated systems among small businesses remains at a developing stage. Under the updated target indicators of the “Digital Uzbekistan – 2030” Strategy, the share of large business entities implementing enterprise resource planning (ERP) systems is targeted to reach 70% in 2026, compared with the latest reported level of 60%. The adoption rate among small businesses may remain constrained by financial and technical factors [4].
- Further development of workforce competencies and practical IT skills is required. Further alignment between the digital competency needs of small enterprises and the skills of local university graduates may improve the effectiveness of digital adaptation [4].

The analysis as of September 2026 indicates that digital adaptation among small business entities in the Republic of Karakalpakstan has become one of the factors supporting growth in regional services and industry [5]. The 70.6% share of small businesses in the services sector and the rapid growth of ICT services indicate opportunities for the further development of digital transformation.

The following research and practical recommendations are proposed to improve the effectiveness of digital adaptation in small businesses:

- Infrastructure optimization: in line with the targets set for 2030, expand broadband fiber-optic coverage to 99% in all districts and rural areas of Karakalpakstan and improve mobile connectivity [4].
- Digital subsidies for small businesses and simplified ERP modules: consider expanding financial support mechanisms that may partially offset the costs incurred by microenterprises and small enterprises when purchasing software and CRM/ERP systems [4].
- Integration of higher education and the IT ecosystem: strengthen practical laboratories in digital marketing, fintech, and artificial intelligence at Karakalpak State University named after Berdakh and other higher education institutions, tailored to small business needs [1; 4].
- Access to e-commerce and export platforms: encourage the integration of small businesses into national and international electronic marketplaces [1].

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