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ICT EMPLOYMENT GROWTH AND DIGITAL STRUCTURAL TRANSFORMATION IN UZBEKISTAN

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ABSTRACT

Using official annual data from the National Statistics Committee of Uzbekistan (2010–2025), this paper tracks ICT employment across all economic sectors and regions. ICT employment more than doubled – from 53,100 to 108,800 workers – growing at roughly 2.8% per year before the 2017 reform era and accelerating to 6.8% afterwards. Despite this, the sector still accounts for under 1% of total employment, remains concentrated in Tashkent, and would need to grow at over 22% annually to hit the government's target of 300,000 IT jobs by 2030. We argue this reflects an early but genuine structural shift, constrained by skills gaps and geographic inequality, and offer five focused policy recommendations.

Keywords: ICT employment; digital economy; structural transformation; transition economies; Uzbekistan; Central Asia.

1. INTRODUCTION

Something has been changing, quietly, in Uzbekistan's labor market. While the country is still principally an agricultural economy – farming directly employs around 3.1 million people – a small but fast-growing share of workers has been shifting into information and communication technology jobs. Between 2010 and

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2025, ICT employment more than doubled, growing faster than any other tracked sector.

Uzbekistan is a useful case for studying this shift. It is a transition economy that emerged from Soviet central planning, went through a long period of gradual state-managed reform, and then embarked on a notably more ambitious liberalization and digitalization program after 2016. The government has been unusually explicit about its digital labor market ambitions: the Digital Uzbekistan 2030 strategy targets 300,000 young people in IT sector employment by 2030, and the broader Uzbekistan 2030 national strategy frames the country's aspiration as becoming a 'regional IT Hub' (Ministry of Digital Technologies, 2020; Government of Uzbekistan, 2026).

Those are large targets from a modest starting point. Whether the current trajectory is consistent with reaching them – and whether the growth we observe represents genuine structural change or a narrow urban enclave – are the questions this paper addresses.

We use four official annual datasets from the National Statistics Committee of Uzbekistan covering 2010 to 2025, broken down by region and economic sector. Three research questions guide the analysis: (1) How has ICT employment changed and is there a detectable policy-linked acceleration? (2) Is growth geographically spread or concentrated? (3) What does the data say about the feasibility of the 2030 employment target?

The paper contributes to a small but growing literature on ICT and the labor market in Central Asia. Most existing work examines GDP effects of ICT investment (Marty, 2025) or digital infrastructure (Sobirov, 2026) rather than sectoral employment composition over time. We also contribute by directly linking the observed data trend to a policy timeline – an angle that aggregate studies tend to underplay.

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2. LITERATURE VIEW

The structural transformation literature, from Lewis (1954) through Rodrik (2016), frames development as a reallocation of workers from low-productivity to high-productivity activities. The digital economy is a candidate for absorbing this movement – but only if the ICT sector is connected to the broader economy, not isolated as a high-wage urban enclave.

The Central Asian evidence on ICT and growth is sobering. Marty (2025), covering Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan from 2000 to 2022, finds that ICT investment has a statistically negative long-run effect on GDP growth in the region, which he attributes to limited institutional absorptive capacity. In other words, digital investment alone does not translate into productive gains without complementary improvements in skills and governance. At the Uzbekistan level, Sobirov (2026) uses panel data for 14 regions between 2010 and 2024 and finds that a composite digital index is positively associated with total employment levels. The OECD (2023) provides the sharpest diagnostic of supply-side constraints: limited digital literacy, an underdeveloped regulatory framework, and weak public-private coordination in skills policy. These findings set the context for our empirical analysis.

3. POLICY CONTEXT

Three policy moments matter for interpreting the employment data. The first is the broad reform agenda launched after 2016 under President Mirziyoyev, which included currency liberalization, foreign investment promotion, and – specifically for the digital sector – Presidential Decree No. 3832 of July 2018 establishing the legal and tax framework for IT parks and digital enterprise (President of Uzbekistan, 2018). The Ministry of Innovative Development was formed in November 2017.

The second is the Digital Uzbekistan 2030 strategy, adopted in October 2020. It covers more than 220 priority projects spanning e-government, domestic software

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development, digital infrastructure, and workforce training, with the 300,000 IT jobs target as its headline labor market commitment (globalcio.com, 2023; digital.gov.uz, 2025).

The third is the updated Uzbekistan 2030 national strategy of 2026, which reinforces the IT hub ambition and adds targets including training 3 million people in modern professions using AI tools and reaching the top 60 of the Global Innovation Index (Government of Uzbekistan, 2026). New IT Park branches are planned in Samarkand, Namangan, Sirdarya, and Bukhara, plus a GPU-equipped R&D center in Nurafshon (Ministry of Digital Technologies, 2025).

Against this background, the labor market also faces a documented skills gap. Recent analysis of Uzbekistan's ICT labor market describes a duality: rising employer demand alongside a structural shortage of qualified graduates and a persistent mismatch between university curricula and industry needs (American Journal of Management and Economics Innovations, 2026).

4. DATA AND METHOD

We use four official datasets from the National Statistics Committee of Uzbekistan (stat.uz), all annual, covering 2010 to 2025 (with 2025 marked as preliminary), and measured in thousands of persons. They are: (1) labor resources (indicator 2.02.01.1000); (2) able-bodied working-age population (indicator 2.02.01.1100); (3) total employed population (indicator 2.02.01.1600); and (4) employment by economic activity (indicator 2.02.01.1500), which follows the national OKED-2 classifier aligned with ISIC Rev. 4 and covers 19 sectors.

An important methodological point: Uzbekistan's employment definition includes informal sector workers and labor migrants abroad (E = EOs + EIs + LM). This broad approach avoids the undercounting that plagues studies relying only on formal employment registers, which matters in a high-informality economy.

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The analysis is descriptive and comparative: we calculate ICT employment shares, sub-period compound annual growth rates (CAGR), sector-level comparisons, and regional employment rates. We do not estimate a causal model – the data lack the variation needed to cleanly identify specific policy effects, and we prefer transparency about that limitation over a spurious precision.

5. RESULTS

5.1 ICT employment: headline numbers

ICT employment rose from 53,100 in 2010 to 108,800 in 2025 – a 105.3% increase over fifteen years. Total employment grew by 28.4% over the same period, making ICT by far the fastest-growing tracked sector. Table 1 places this in comparative context.

Table 1. Employment by selected sector, 2010–2025 (thousands of persons)

Sector	2010	2017	2020	2025	Growth (%)
ICT	53.1	64.3	58.7	108.8	+105.3
Construction	1,033.7	1,290.0	1,305.6	1,450.5	+40.3
Education	1,102.0	1,106.6	1,158.2	1,367.6	+24.1
Manufacturing	1,339.1	1,599.9	1,597.7	1,699.6	+27.0
Health	596.2	602.6	669.5	719.4	+20.7
Agriculture	3,118.1	3,671.3	3,499.2	3,132.6	+0.5
Total employed	11,628.4	13,520.3	13,236.4	14,933.9	+28.4

Source: NSC Uzbekistan, datasets 2.02.01.1500 and 2.02.01.1600 (accessed April 2026). 2025 data are preliminary.

5.2 A two-speed growth pattern

Splitting the period at 2017 reveals a sharp acceleration. Between 2010 and 2017, ICT employment grew at a CAGR of roughly 2.8% – modest, broadly tracking labor force expansion. Between 2017 and 2025, the CAGR rose to about 6.8% –

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more than double. The sector added 44,500 jobs in eight years compared to 11,200 in the preceding seven. Table 2 summarizes this.

Table 2. ICT employment growth by sub-period

Period	Start (000s)	End (000s)	Jobs added	CAGR
2010–2017 (pre-reform)	53.1	64.3	11,200	~2.8%
2017–2025 (reform era)	64.3	108.8	44,500	~6.8%
2010–2025 (full period)	53.1	108.8	55,700	~4.9%

Source: Authors' calculations from NSC dataset 2.02.01.1500.

The year 2020 brought a brief dip (from 62,200 to 58,700) alongside a broader pandemic shock that removed around 305,000 jobs economy-wide. Recovery was fast: by 2021 ICT employment had already exceeded its pre-pandemic level, suggesting the underlying growth momentum was intact.

5.3 ICT share of total employment

In share terms, the ICT sector moved from 0.46% of total employment in 2010 to 0.73% in 2025. These remain small numbers – agriculture alone accounts for 21% in 2025. But the relative growth is significant: the ICT share expanded by more than 58% while the total employment base itself was also growing. The sector has been consistently outpacing the overall economy, not just riding demographic expansion.

5.4 Regional dimension

The regional employment data show sharp geographic unevenness. Tashkent city's total employment grew 32.7% between 2010 and 2025 – the strongest regional performance – driven partly by internal migration and by the well-documented influx of Russian and Belarusian IT professionals following the 2022 sanctions environment. By mid-2023, close to 2,000 such professionals had relocated to Uzbekistan, specifically to Tashkent (Times of Central Asia, 2024).

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Meanwhile, resource-extraction regions such as Navoiy grew at under 16%. Without region-level ICT sector data – which the Statistics Committee does not currently publish at the oblast breakdown – we cannot fully quantify this concentration, but the pattern is consistent with all available qualitative and secondary evidence.

5.5 Labor supply and the employment gap

Labor resources grew from 16,726,000 in 2010 to an estimated 20,603,000 in 2025. Total employment rose from 11,628,000 to 14,934,000. The employment rate improved modestly, from about 69.5% to 72.5%, leaving roughly 5.7 million people in labor resources but outside measured employment. This population is the medium-term supply pool for the digital economy – but only if skills investment matches the scale of the ambition.

6. DISCUSSION

6.1 Transformation or enclave?

The central question is whether Uzbekistan's ICT employment growth represents genuine structural transformation or a small, geographically concentrated modern sector with limited spillovers. Our reading is that both descriptions are partially accurate.

The reform-era CAGR of 6.8% is real and sustained, associated with a specific set of institutional changes. The sector recovered quickly from an external shock. These are signs of a healthy growth trajectory. At the same time, fewer than 110,000 workers in an economy of 15 million is a thin base, and Marty's (2025) finding that ICT investment in Central Asia has not yet translated into long-run GDP gains is a genuine caution: growth in the number of ICT workers does not automatically mean broader productivity transformation if those workers are operating in an enclave disconnected from the rest of the economy.

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6.2 Feasibility of the 2030 target

The government's target of 300,000 IT sector jobs by 2030 implies adding roughly 191,000 jobs in five years from the 2025 base of 109,000 – an increase of 175%. At the reform-era CAGR of 6.8%, the sector would reach around 160,000 workers by 2030. Hitting 300,000 would require a CAGR of approximately 22%, more than three times the current pace. The planned IT Park regional expansion and the 3-million-person AI skills training program could narrow this gap, as could continued inbound talent migration, but the arithmetic is demanding. The risk is that aspirational targets lead to credential inflation and low-quality training rather than genuine skill formation – a pattern well-documented in other transition economies.

7. CONCLUSIONS AND POLICY RECOMMENDATIONS

Uzbekistan's ICT sector is growing fast relative to the rest of the economy and has shown a clear, sustained acceleration since 2017 that coincides with the government's reform program. The direction of travel is right. But the sector is still small, still concentrated in the capital, and still well short of the trajectory needed to reach the 300,000-job target by 2030. Five focused recommendations follow from this analysis.

Decentralize the digital ecosystem. Regional IT Park branches are a start, but they need to be embedded in local industries – logistics in Samarkand, textiles in Fergana – rather than simply replicating the Tashkent software model.

Build a real skills feedback loop. The gap between university output and employer needs is well-documented and not yet fixed. A systematic employer-curriculum coordination mechanism, as recommended by OECD (2023), should be institutionalized, not left as an occasional consultation.

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Set annual milestones, not just a 2030 headline. Intermediate, publicly reported targets would allow course corrections and make the policy genuinely accountable before 2030 arrives.

Connect rural workers to the digital economy. The labor surplus is largely rural. Without meaningful rural digital literacy and connectivity investment, the 5.7-million gap between labor resources and measured employment will not narrow through digital jobs.

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