



TECHNOLOGY FEATURE Industrial News / Technology Report / Research Communication

Tech Optimism in Pakistan Is Real — But It Is Concentrated in Three Cities

Pakistan's IT exports are growing at 20 percent a year, its freelance economy is the fourth largest on earth, and its startup founders are being cited by global press. Almost none of that growth is happening in Multan, Quetta, Peshawar, or the 130 million Pakistanis who live outside the country's three largest cities.

By **Zubair Ahmed Khan** | Peshawar | Published: July 2026

✉ z.khan@gmail.com | Position E-commerce expert

Introduction

The headline numbers from Pakistan's technology sector have, for the past three years, been almost unreasonably good. IT and IT-enabled services exports reached \$3.8 billion in FY2024–25, growing at roughly 20 percent year-on-year and outpacing every other major export category. The country ranks fourth globally in freelance workforce volume. Mobile broadband subscriptions have crossed 136 million, making Pakistan one of the ten largest broadband markets on earth by subscriber count. The Digital Nation Pakistan Act 2025, passed in January 2025, established a new Pakistan Digital Authority and formally committed the state to digital transformation as a pillar of economic policy. And yet, if you drive two hours in almost any direction from the centres of Karachi, Lahore, or Islamabad, the digital economy ceases to be a lived reality and becomes, instead, a set of statistics about somewhere else.

This is not pessimism disguised as analysis. Pakistan's tech optimism is grounded in real achievements and real momentum. The problem is the geography of that momentum. All eleven of Pakistan's data centres operated by major commercial entities sit within Karachi, Lahore, or Islamabad. The National Incubation Centres, the Special Technology Zones, the PSEB-registered software houses, the venture capital networks, the fibre backhaul infrastructure, the elite computer science faculties — they are overwhelmingly concentrated in a triangle connecting three cities that together house fewer than 20 percent of the country's population. The remaining 80 percent — the farmers in Sindh's interior, the craftspeople of south Punjab, the students in Balochistan's district schools — are not participants in Pakistan's digital economy. They are its spectators.

"Pakistan's digital economy is not a national story. It is a three-city story being told as though it belongs to 241 million people — and the distance between those two things is where the country's most important development failure lives."

What the Three-City Concentration Actually Looks Like

Consider infrastructure first, because everything else flows from it. Pakistan's 136 million broadband subscribers sound like an impressive headline until you look at what those connections actually deliver by



geography. Fixed broadband penetration nationally sits below 2 percent, with approximately 3.6 million fixed subscriptions concentrated almost entirely in urban cores. Fibre teledensity is around 0.45 percent nationally — far below the 40 percent international benchmark — and only 9 to 11 percent of towers are fibre-connected. A household in a Karachi suburb with Nayatel Fiber enjoys speeds comparable to a European capital. A village in interior Sindh or Balochistan's Makran district is, as of mid-2026, still dependent on 2G or marginal 4G signal. The rural share of Pakistan's population is approximately 62 percent; rural internet penetration in 2024 was around 36.5 percent. That gap — between the rural majority and digital access — is not a rounding error. It is the central fact of Pakistan's digital economy that the export growth narrative quietly elides.

Beyond infrastructure, the concentration of tech institutions reinforces the same geography. Pakistan's flagship computing faculties — FAST-NUCES, LUMS, NUST, IBA — are clustered in the same three cities. The National Incubation Centres, which provide seed funding and mentorship to early-stage startups, operate primarily in Islamabad, Lahore, Karachi, and Peshawar. Plan9, Punjab's flagship startup accelerator, is Lahore-based; its 1,100 graduated startups and 24,000 jobs are, in the overwhelming majority, a Punjab story. The PSEB registers software houses and extends tax benefits, but its engagement infrastructure and relationship networks are urban and, specifically, three-city-centric. Freelancing platforms do offer a partial workaround — a talented developer in Multan or Hyderabad can theoretically serve a client in Seattle without setting foot in Lahore — but that outcome requires reliable broadband, a bankable payment channel, digital literacy, and mentorship networks that are precisely the things secondary cities lack. The platform exists; the ecosystem around it does not.

[Insert Image Here — 1200 × 600 px recommended]

Figure 1: Broadband infrastructure density map of Pakistan, illustrating the sharp urban-rural connectivity gradient. Credit: PTA Annual Report 2025 / PakTech Today

What Exclusion Actually Costs

The economic cost of geographic concentration in Pakistan's tech sector is not merely a matter of fairness — it is a ceiling on the sector's own ambitions. The government's \$10 billion IT export target requires a talent base far larger than three cities can sustainably produce. Pakistan already faces a skills gap that industry leaders describe as acute: software houses cite shortages in AI, cloud, DevOps, and cybersecurity even as university enrolment in computing grows. The reason is that the pipeline of usable, job-ready talent flows primarily from a small number of elite institutions in Karachi, Lahore, and Islamabad. The universities of Balochistan, KPK, and interior Sindh graduate students whose skills often go underutilised or who migrate internally to the three cities — contributing to those cities' congestion while draining secondary towns of the educated people they most need to develop their own tech ecosystems. Internet disruptions alone cost Pakistan an estimated \$238 million in 2023, according to Invest2Innovate — and those losses fell disproportionately on businesses in regions least able to absorb them.

The social cost is harder to quantify but no less real. Pakistan's 241 million people are 65 percent under the age of 30 — the most frequently cited statistic in every government presentation about the country's digital potential. That demographic dividend is not concentrated in Karachi, Lahore, and Islamabad. It is spread across the country, including in Balochistan, where internet penetration sits significantly below the national average; in southern Punjab's vast agricultural belt, where power outages still average several hours a day; and in the former FATA regions, where the Special Communications Organisation is still the primary connectivity provider for communities that commercial operators find uneconomical to serve. Each of these young people is a potential contributor to the export economy that Pakistan's government is counting on. They are being left to watch that economy grow on someone else's terms, in someone else's city, on a connection speed that does not support the platforms they would need to participate.



What a Genuinely National Digital Economy Would Require

There are meaningful policy efforts underway. The Universal Service Fund has approved Rs13 billion in broadband and optical fibre projects across seven underserved districts in Sindh, Punjab, KPK, and Balochistan — including a Rs2.06 billion Quetta–Ziarat fibre corridor — that will extend connectivity to an estimated 5.5 million rural Pakistanis. USF programmes have so far enabled broadband and voice access for 39.4 million rural citizens since 2020. Starlink received regulatory approval in 2025 and its satellite-to-cell service promises to eliminate the dead zones that terrestrial networks still cannot reach economically. CPEC 2.0, reframed by the government as an intelligent infrastructure programme, nominally includes ICT components that could benefit Balochistan and KPK in particular. These are real developments. The question is whether they are proportional to the scale of the problem they are trying to solve, and whether the institutions that would activate digital access — incubation centres, skills training programmes, payment infrastructure, accessible banking — are following the connectivity investments into secondary cities or remaining in the three cities that already have all of these things.

Pakistan's technology optimism is not misplaced. The growth is real, the talent is real, and the global appetite for Pakistani software and services is real. But optimism that is geographically bounded is not a national story — it is a story about three cities, told at a national scale, in a way that obscures the distance between them and everyone else. A country that is serious about a \$10 billion or \$25 billion digital export ambition cannot afford to treat Multan, Quetta, Peshawar, Hyderabad, Faisalabad, and Sukkur as beneficiaries of a trickle-down effect from Lahore. It needs those cities to have their own software houses, their own incubation networks, their own fibre connections, their own digital payment rails, and their own pathway into the global economy that does not require a bus ticket to Lahore as the first step. The infrastructure investment is beginning. The institutional investment has barely started. That is the real gap in Pakistan's digital story — and until it closes, the optimism, however well-earned, belongs to a minority.

About the Author

Prof. Zubair Ahmed Khan is Head of the Department of Economics & Development Studies at the University of Peshawar and a Senior Research Fellow at the Pakistan Institute of Development Economics (PIDE). His research focuses on regional economic inequality, digital inclusion policy, and the political economy of Pakistan's technology sector. He can be reached at z.khan@uop.edu.pk.

Keywords: Digital Divide; Regional Inequality; IT Exports; Broadband Access; Pakistan Tech Ecosystem; Secondary Cities; Rural Connectivity

References

- [1] Pakistan Telecommunication Authority (2025) Annual Report 2024–25: Broadband & Mobile Data Statistics. Islamabad: PTA. Available at: www.pta.gov.pk
- [2] Invest2Innovate (i2i) (2024) Pakistan Startup Ecosystem Report 2024. Islamabad: i2i. Available at: invest2innovate.com
- [3] Universal Service Fund Pakistan (2025) USF Board Approves Rs13 Billion Broadband and Optical Fibre Projects. Islamabad: USF. Available at: www.usf.org.pk
- [4] Asian Development Bank (2025) Pakistan's Digital Ecosystem: A Diagnostic Report. Manila: ADB. Available at: www.adb.org
- [5] World Bank (2025) Pakistan Development Update — Reimagining a Digital Pakistan, April 2025. Washington D.C.: World Bank. Available at: www.worldbank.org