EDITORIAL

The Leaking Pipeline: Why Pakistan's Women Leave Tech After Graduation

Pakistan produces thousands of female computer science graduates every year. Most of them will not be working in tech within five years of leaving campus. The problem is not talent, ambition, or ability — it is everything that happens the moment they try to use it.

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Introduction

Walk into any computer science lecture hall at a Pakistani university today and you will find something that was unthinkable two decades ago: women, often in significant numbers, sometimes forming a majority in the room. Female enrolment in STEM programmes has grown steadily across public and private universities alike, driven by ambitious families, government laptop schemes, and the very visible financial success of Pakistan's IT export sector. A degree in computing has become, for many middle-class Pakistani families, the most credible route for a daughter into a professional career with real income and social standing. The pipeline, in other words, has been built. What has not been built is what comes after it.

Pakistan ranks dead last — 146th out of 146 countries — in the World Economic Forum's Global Gender Gap Index 2025. Only 22 percent of Pakistani women participate in the formal labour force, against 81 percent of men. In the tech sector specifically, women who graduate with computing degrees face a compound barrier: a professional environment that was not designed for their presence, a commute infrastructure that does not protect their safety, workplace cultures that normalise harassment, and family pressures that intensify the moment a woman tries to build a career rather than simply completing a degree. The result is a pipeline that fills at the university end and empties long before it reaches the part that matters — sustained, senior, economically meaningful participation in Pakistan's tech economy.

> ***"Pakistan celebrates its female CS graduates at convocation and then constructs every possible obstacle to stop them from actually working in tech. That is not a talent problem. That is a policy failure."***

Where the Pipeline Leaks: Three Structural Barriers

The first barrier is safety and mobility. Pakistani cities were not designed with the working woman in mind. Most mid-tier software houses and IT parks operate in commercial zones that are poorly served by reliable public transport. A female developer in Lahore, Karachi, or Islamabad who does not own a car — or whose family does not support her owning one — faces a daily commute that is genuinely unsafe. Research interviews conducted with women in Karachi's formal employment sector consistently identify transport barriers, harassment during commute, and family opposition to late working hours as primary reasons for leaving jobs. Government programmes like Pink Buses and Women on Wheels are well-intentioned but cover a fraction of the routes that matter. Remote work, which the pandemic briefly made routine, offered a partial solution — but many companies have retreated to office-first cultures without considering who bears the cost of that decision disproportionately.

The second barrier is workplace culture. According to research on workplace harassment in Pakistan, close to 93 percent of women working in the public and private sectors report having experienced some form of sexual harassment. In the technology sector specifically, women describe environments where their technical competence is routinely questioned, where informal networks exclude them, and where raising a harassment complaint means risking the job itself rather than the behaviour. Only 5.71 percent of senior management positions in Pakistani companies are held by women. In managerial roles across all sectors, women account for just 0.14 percent — against 2.33 percent for men. The message this sends to a woman three years into her career is not subtle: this organisation was not built to keep you, and it will not go out of its way to do so. The third barrier is the family decision that follows. Marriage, in Pakistan's dominant social framework, is still widely expected to resolve the tension between a woman's career and her domestic responsibilities — in favour of the domestic. Without institutional support like childcare, flexible hours, or genuine parental leave culture, even women who have navigated the commute and the workplace culture face a moment, usually in their late twenties, where continuation becomes structurally difficult. The exit, at that point, is rarely dramatic. It is quiet, gradual, and almost universally described as temporary — and then it is not.

The Economic Argument Pakistan Is Not Making

The case for fixing this is not primarily moral, though it is that too. It is economic, and the numbers are not marginal. The UNDP has estimated that if women participated in Pakistan's labour force at the same rate as men, GDP could surge by as much as 60 percent. The tech sector, where the barriers to entry are primarily cultural rather than physical, and where remote and flexible work is entirely feasible, is precisely the sector where closing the gender participation gap should be most achievable — and where the return in export earnings, tax revenue, and institutional capability would be most immediate. Pakistan is chasing a $10 billion IT export target. It is doing so with, at most, one gender of its computing graduate base. That is not an ambitious strategy. It is a self-imposed handicap.

The good news — and there is some — is that Pakistan's IT sector has structural features that make it more correctable than most. Remote work is viable and, for export-oriented companies, already normalised. The skills are transferable across geography. Freelancing platforms allow women in cities without a tech cluster to participate in the global digital economy without needing to navigate a hostile commute or a hostile office. And women's representation in AI roles globally has doubled since 2016, suggesting that, given access, women in tech are more than capable of competing in the field's most high-growth areas. The mobile internet gender gap in Pakistan has already narrowed significantly — from 38 percent in 2023 to 25 percent in 2024 — driven largely by rural women gaining access. The foundation for a different story is available. It is being squandered.

What Would Actually Help

Effective action here does not require a new ministry or a new buzzword. It requires three things done seriously. First, the government and Pakistan Software Export Board should make remote and hybrid work options a stated condition for companies seeking PSEB registration and IT park access. If you want the tax advantages of being a recognised IT exporter, your workplace policy must be compatible with employing women. Second, FOSPAH — the Federal Ombudsman for harassment protection — needs real enforcement capacity in the tech sector, where most companies are small and where informal workplace cultures operate without HR departments, grievance processes, or any meaningful accountability. Passing the Protection Against Harassment of Women at the Workplace Act was necessary; enforcing it is what matters. Third, Pakistan’s leading tech companies need to publish gender disaggregated workforce data annually. You cannot manage what you do not measure, and right now almost no one in the sector is measuring it.

Pakistan’s gender gap in tech is not a pipeline problem. The pipeline fills every year. It is a retention problem, a safety problem, a culture problem, and a policy problem — and it is costing the country a calculable share of the export growth it keeps publicly promising to achieve. The women who leave tech after graduation are not leaving because they lack ability or ambition. They are leaving because the industry, the commute, the workplace, and the household asked them to absorb costs that their male peers were never asked to bear, and eventually decided the calculation did not add up. Fixing that will not require a summit or a slogan. It will require companies to act, government to enforce, and the sector’s leadership to stop treating the absence of women in senior tech roles as a societal inevitability rather than a management failure.