Outputs Without Outcomes? A Four-Type Analysis of Digital Police Reform in Punjab, Pakistan (2015-2026)

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ABSTRACT: Since 2015, the Punjab Police has digitized crime recording, personnel management, and citizen services, and built one of South Asia's largest urban surveillance networks. Whether this has changed how policing is governed and experienced is unclear. This article asks whether legal, structural, and cultural reform has kept pace with technological modernization, and which asymmetries prevent digital outputs from becoming governance outcomes. It develops a four-type typology (legal, structural, technological, cultural) and a two-axis rubric that rates the extent of implementation separately from the strength of evidence across five dimensions. A qualitative single-case policy analysis of 2015-2026 triangulates primary legislation, dated official statistics and peer-reviewed evaluations. Outputs are substantial: about 17,000 Safe City cameras were operating by June 2026, and Police Khidmat Marakiz served 3.84 million citizens in 2025. Outcomes are not. Two-thirds of service-centre transactions were verification or character certificates; only 4,764 were crime reports, against 1.11 million crimes recorded in 2023. Criminal procedure remains governed by the Code of Criminal Procedure 1898, no data-protection statute regulates surveillance, and no reform type exceeds minimal outcome attainment. Literacy and access to devices continue to limit women, but mobile internet gender gaps are narrowing sharply between 2019 and 2025. The key barriers are legal and political, not technical, so the establishment of procedural law, the limitation of patronage, and the provision of independent oversight all have to come before there can be any further scaling of technology.

KEYWORDS: Police Reform, Digital Governance, Isomorphic Mimicry, Accountability, Street-Level Bureaucracy, Surveillance, Punjab Police, Pakistan

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Introduction

Police forces all over the world have invested heavily in Digitalization, analytics and networked surveillance (Brayne, 2017; Lum et al., 2017). Since 2015, the partnership of Punjab Police with the Punjab Information Technology Board (PITB) has resulted in the creation of a suite of tools for crime recording, personnel management and service delivery. By June 2026, the Punjab Safe Cities Authority (PSCA) had deployed approximately 17,000 cameras connected to central monitoring in 43 cities, with over 10,000 additional cameras planned for 98 tehsils (Sohaib, 2026).

Comparative evidence counsels caution about what such investment can achieve alone. Information and communication technology (ICT) deters corruption mainly by raising the certainty of detection, and the effect is weak without ICT-specific law (Bhattacherjee & Shrivastava, 2018). Officers tend to absorb new technologies into established, reactive routines (Lum et al., 2017), and where state capacity is low and politics neo-patrimonial, elite resistance obstructs democratic police reform (O'Shea, 2023). Development scholarship names the broader pathology: states adopt the outward forms of capable organizations while their function stays unchanged, a pattern Pritchett et al. (2013) call isomorphic mimicry.

Police are one of the least trusted institutions in Pakistan. Survey results in Lahore and Peshawar indicate that trust in Punjab Police is largely driven by procedural assessments (e.g., access to information and respect for rights), whereas crime-control performance only influences trust in Khyber Pakhtunkhwa, where the police are less exposed to political interference (Hassan, 2025). In Lahore, legitimacy is additionally dependent on evidence of integrity and crime control (Jackson et al., 2014). Such assessments are made at the thana (police station) and the checkpoint. 'Thana culture' refers to discretionary registration, informal payment, and weak supervision. Police corruption in Pakistan has been described as politicized, institutionalized, and legitimized within a kinship-based patron-client culture (Malik & Qureshi, 2021). Digitization may simply relocate these rents; we treat that displacement as a theoretical expectation, not a finding.

Punjab-specific research has examined frontline adaptation to the Police Station Record Management System (PSRMS) (Afzal & Panagiotopoulos, 2024), data-driven monitoring in the provincial health bureaucracy (Callen et al., 2020), and community policing within a six-country trial (Blair et al., 2021). No study has jointly assessed the legal, structural, technological, and cultural dimensions of the province's police digitization, or asked how progress in one is conditioned by stagnation in another. We address three questions:

RQ1: How did the Punjab Police's reform trajectory evolve between 2015 and 2026 across the four reform types?

RQ2: What does high-quality international evidence suggest about the likely effectiveness of the reforms pursued in each domain?

RQ3: Which asymmetries between reform types most constrain the conversion of digital outputs into legitimate and effective policing?

Our argument is that Punjab has built digital infrastructure inside a largely unreformed institutional shell. The article makes three contributions. Empirically, it assembles dated institutional data on Punjab's digital policing and reads them against the comparative evidence. Methodologically, it offers a two-axis rubric that rates the extent of reform separately from the strength of evidence and distinguishes outputs from outcomes. Theoretically, it specifies *performative digitization*, a digital variant of isomorphic mimicry in which administrative centralization substitutes for institutional democratization and argues that the binding constraints on digital reform in post-colonial security institutions are legal and political rather than technical.

The paper consists of six sections. The following section develops the theoretical framework that will be used to employ in the study after identifying the research gap. The third section deals with data and research design. The fourth section describes the results, keeping in view the theoretical framework. The fifth section deals with discussion of the results, while the last section concludes the paper.

Theoretical Framework

Outputs, Outcomes and Performative Digitization

We distinguish *outputs*, the artefacts and transactions a reform produces (cameras installed, records digitized, certificates issued), from *outcomes*, the changes in governance that justify it: rights-respecting investigation, sanctionable misconduct, equitable access and public trust. Three literatures explain why the two can diverge. The first is the capability-trap literature. Pritchett et al. (2013) show how states adopt the forms of functional

organizations to camouflage a persistent lack of function, and how "premature load bearing" places demands on fledgling systems that they cannot meet. Digital tools are especially suited to mimicry because their outputs are countable, attributable and displayable, while their outcomes are slow, diffuse and politically costly to pursue. We call the resulting pattern performative digitization: digitization whose principal function is to signal modernity to political principals, donors and the public, rather than to change how authority is exercised.

The second is digital-era governance (DEG). Dunleavy et al. (2006) argue that digitization yields its gains when combined with the reintegration of fragmented functions and needs-based holism. DEG thus supplies a benchmark: digitization accompanied by parallel agencies and unchanged service logic is a partial, and possibly counterproductive, version of the model.

The third concerns discretion and accountability. Street-level bureaucrats make policy through the discretion they exercise under resource scarcity (Lipsky, 2010). Technology may curtail that discretion or enable new forms of it (Buffat, 2015), and big-data policing amplifies surveillance while lowering thresholds for inclusion in police databases (Brayne, 2017). Accountability, however, is a relationship in which an actor must explain and justify conduct to a forum that can question, judge, and impose consequences (Bovens, 2007). Data become accountable only when such a forum exists. Without one, digital systems extend what Zuboff (2019) calls an asymmetric division of learning: the institution learns more about citizens and subordinates, while citizens learn little about the institution. This yields our central distinction between *administrative centralization*, which increases upward visibility and command control, and *institutional democratization*, which subjects police power to external forums and citizen contestation.

A Four-Type Typology of Police Reform

To locate where outputs fail to become outcomes, we disaggregate police reform into four types, distinguished by their locus of change (Table 1). Legal reform changes the rules that authorize and limit police power; structural reform changes who holds authority; technological reform changes the tools and workflows; cultural reform changes officer conduct and police-public relations. Each type has characteristic outputs and target outcomes, so the typology locates the output-outcome gap within each domain and in the interactions between domains.

Table 1

The Four Reform Types: Locus, Instruments, Outputs and Target Outcomes

Reform type	Locus of change	Punjab instruments	Characteristic outputs	Target outcomes
Legal and statutory	Rules authorizing and limiting police powers and technologies	Police Order 2002; PECA 2016; Qanun-e-Shahadat 1984; CrPC 1898	Statutes enacted; offences defined	Admissible evidence; enforceable rights; sanctionable misconduct
Structural and organizational	Allocation of authority; insulation from politics	Police Khidmat Marakiz (PKM) and Front Desks; HRMIS; PITB and PSCA	New units, posts and service counters	Protected postings; integrated command; accessible registration
Technological and procedural	Tools and workflows for records, surveillance and response	PSRMS; CRMS; AVLS; Safe City IC3; NADRA-linked biometrics	Systems installed; records digitized	Faster detection and clearance; accountable response
Cultural and citizen-centric	Officer conduct; police-public relations	Complaint Management System; Women Safety App; e-FIR	Apps launched; transactions processed	Procedural justice; trust; equitable access

Note. CRMS = Criminal Record Management System; AVLS = Anti-Vehicle Lifting System; HRMIS = Human Resource Management Information System; IC3 = Integrated Command, Control and Communication; NADRA = National Database and Registration Authority.

The typology departs from stage models of e-government, which describe maturity along a single technological axis, and from studies that confine police technology to the organization (Lum et al., 2017). *Legal.* Technology delivers accountability dividends mainly where law raises the certainty of sanction (Bhattacherjee & Shrivastava, 2018). If procedure is not updated, digital systems will generate more data but not more prosecutions.

Structural: In weak institutional settings, managerial reform succeeds where political principals cannot override it. In Punjab's health bureaucracy, a data-driven monitoring reform worked only where senior officials acted on the data (Callen et al., 2020), and the weak link between police performance and public trust in Punjab, relative to the more autonomous force in Khyber Pakhtunkhwa, points to political interference as the intervening condition (Hassan, 2025). New structures that leave postings exposed to patronage should produce parallel nodes rather than integration.

Technological: Organizational context mediates technology's effect. Officers absorb new systems into existing routines (Lum et al., 2017), and the curtailment or enablement of discretion depends on supervision (Buffat, 2015). Technological outputs should therefore track, not lead, legal and structural reform.

Cultural: Procedural fairness produces legitimacy, but in Lahore legitimacy also depends on effectiveness and integrity (Jackson et al., 2014). E-government reduces petty corruption only where direct contact with street-level officials can be avoided (Kalesnikaite et al., 2023). Citizen-facing channels should therefore absorb low-stakes transactions while high-stakes encounters remain at the thana.

Research Gap

There are three gaps. First, evaluations of police technology are overwhelmingly North American and European; South Asian experimental work has focused on staffing and bureaucratic management rather than digital policing (Sukhtankar et al., 2022). Second, studies are often focused on one type of reform in isolation, obscuring the interactions that the typology is meant to reveal. Third, institutional information on Punjab's digital systems is propagated in official statements and news reports without systematic analysis against comparative evidence.

Research Design

Case Selection and Context

The study uses a qualitative single-case policy-analysis design. Punjab is an extreme case (Seawright & Gerring, 2008): Pakistan's most populous province and, on the evidence assembled here, its most extensively digitized police jurisdiction, so any gap between infrastructure and institutional change should be most visible there.

The case's legal architecture originates in the Police Act, 1861, which subordinated the police to the district magistracy and prioritized regime protection over public service. The Police Order, 2002 separated the police from the executive magistracy and mandated Public Safety Commissions, but amendments in 2004 diluted these oversight bodies, and they were never fully implemented (National Commission for Human Rights [NCHR], 2018). Digital evidence is governed by a layered framework comprising the Qanun-e-Shahadat Order, 1984, the Prevention of Electronic Crimes Act, 2016 (PECA), and the Code of Criminal Procedure, 1898 (CrPC). PECA's 2025 amendment created a National Cyber Crime Investigation Agency with police investigative powers, protected that agency's forensic reports from inadmissibility on that ground alone, and established a social media regulatory authority (Prevention of Electronic Crimes Act, 2016). It did not address search and seizure, data preservation or chain of custody, and amended neither the Qanun-e-Shahadat Order nor the CrPC.

Organizationally, command runs from the Inspector General through regional and district police officers to Station House Officers (SHOs). Digitization added two parallel nodes: PITB, which built the PSRMS and HRMIS,

and PSCA, which operates the IC3 centres. Punjab had 127.69 million residents in 2023, 59.3% of them rural (Pakistan Bureau of Statistics [PBS], 2023), and 749 police stations (Bureau of Statistics Punjab [BOS], 2024), or roughly one station per 170,500 residents (authors' calculation).

Data Sources

Three evidence streams were triangulated: (a) primary legislation and doctrinal analyses of case law; (b) dated official statistics, namely the 2023 Census (PBS, 2023), provincial crime and administrative statistics compiled from police returns (BOS, 2024), the Inspector General's 2025 year-end PKM figures reported by the state news agency (Associated Press of Pakistan [APP], 2025), and GSMA mobile gender-gap data (GSMA, 2025; Ministry of Information Technology and Telecommunication [MoITT], 2026), supplemented by civil-society reports (Digital Rights Foundation [DRF], 2018, 2020); and (c) peer-reviewed literature, identified through iterative searches of an AI-assisted academic search engine and backward citation tracking, with priority given to experimental, quasi-experimental and systematic-review evidence. Undated statistics on Punjab Police and PITB web portals were excluded because different official pages reported conflicting totals for the same system (for example, between 1.04 million and 1.9 million digitized criminal records). Every administrative figure retained carries an explicit reference date and an identifiable issuing authority.

Analytical Strategy

Directed qualitative content analysis applied a codebook derived from Table 1. Each evidence unit (a statutory provision, an administrative indicator or a study finding) was coded for reform type, dimension, evidence stream and evidential strength. For example, the PKM service count was coded as structural, deployment, administrative and descriptive; the PSRMS officer survey as technological, organizational integration, peer-reviewed and observational.

Each of the 20 cells formed by the four types and five dimensions was rated on two ordinal scales (Table 2). *Extent of implementation* (E) records how far a reform has been carried out; *strength of evidence* (S) records how well that rating is supported. Rating them separately avoids a common confusion in which a poorly documented reform is scored as weak and a heavily publicized one as strong. One rule links the scales: E = 3 requires S ≥ 2, so that no claim of full implementation rests on a single source. The five dimensions are defined for each type in Table 3; the fifth, *outcome attainment*, captures the output-outcome distinction directly. Ratios were computed only where numerator and denominator share a reference year, and claims are treated as established only when supported by two independent streams.

Table 2

Rating Scales for Extent of Implementation and Strength of Evidence

Score	Extent of implementation (E)	Strength of evidence (S)
0	Absent: no measure, or announced but not begun	No evidence located
1	Initiated: pilot, partial or fragmentary (limited in geography, function or legal force)	Single source, or official claim not corroborated by a second stream
2	Substantial but incomplete: at scale in some components, with material gaps in coverage, integration or legal basis	Consistent, dated administrative or documentary evidence from at least two independent streams
3	Full and institutionalized: province-wide, routine, sustained and legally grounded (only if S ≥ 2)	Independent evaluation (peer-reviewed, audit or (quasi-)experimental) or authoritative primary document

Table 3

Operational Definitions of the Five Dimensions by Reform Type

Dimension	Legal	Structural	Technological	Cultural
Deployment	Statutes governing powers, technology and evidence	New units, posts or processes (PKM, Front Desks, HRMIS)	Scale and coverage of installed systems	Citizen-facing channels and conduct programmes
Legal embedding	Procedural law and binding SOPs	Statutory protection from reversal or political override	Legal basis for collection, retention, admissibility and oversight of data	Enforceable conduct standards, complaint rights and sanctions
Organizational integration	Legal requirements built into training, investigation-prosecution coordination and custody	New structures integrated with the command and investigative chain	Systems used in routine workflows and decisions	Procedural justice embedded in supervision and appraisal
Equitable citizen reach	Protections cover all citizen groups	Access across districts, rural-urban areas and genders	Citizens' capacity to use or benefit from systems	Uptake across gender, literacy and location
Outcome attainment	Change in case outcomes and rights protection	Change in registration, posting stability or responsiveness	Change in detection, clearance or response times	Change in trust, legitimacy or complaints

Results

Legal Reform: Statutes Without Procedure

Legal modernization has proceeded through substantive statutes while procedure has stood still. Article 164 of the Qanun-e-Shahadat Order, 1984 admits evidence obtained through modern devices, and PECA criminalizes a range of cyber-offences, yet investigation and prosecution remain governed by the CrPC of 1898. Although digital evidence is admissible as primary evidence, courts still tend to treat it as circumstantial evidence requiring corroboration, and the Supreme Court makes the admissibility of video conditional on authentication (Hameed, 2021). Pakistani scholarship on digital evidence is largely doctrinal; we located no systematic data on conviction or acquittal rates in cases turning on CCTV footage, call data records or PSRMS entries.

Procedural law is what converts surveillance into investigative value. The evidentiary potential of Punjab's camera network is lost whenever retrieval, custody and authentication rules are absent or ignored, and the 2025 PECA amendment, which centralized cyber-crime investigation in a federal agency, left these gaps untouched for investigations conducted by the Punjab Police. The legal deficit also carries a civil-liberties cost. PSCA has operated without data-protection law or policy and with little transparency (DRF, 2018), and as of March 2026, Pakistan's Personal Data Protection Bill had completed consultation but had not been enacted (Khan & Khan, 2026). Legal reform has generated offences and admissibility provisions (outputs) without the procedural infrastructure that would turn digital records into prosecutions or protect citizens from their misuse (outcomes).

Structural Reform: Parallel Nodes and Contested Postings

PKM service centres and precinct Front Desks were designed to bypass the SHO's historic monopoly over complaint registration. The Front Desk Project, launched in 2015, posted educated staff in police stations to receive complainants and register complaints and First Information Reports (FIRs) electronically after a forty-day course in computer skills and basic law (Chattha et al., 2019). Experimental evidence supports the logic: in a trial across 180 police stations in Madhya Pradesh, India, women's help desks increased the registration of gender-based violence cases, particularly when staffed by female officers (Sukhtankar et al., 2022).

There is no indication in the published sources that this division has solidified into a separate workforce, but the structural implication is clear: a front office trained separately from the investigative cadre can change the point of contact without changing investigative practice. Digitization has thus added nodes (PITB, PSCA, and the front office) next to the command hierarchy instead of reintegrating functions, opposite of the DEG benchmark (Dunleavy et al., 2006).

The same tension is displayed in the HRMIS. It replaces incomplete and tamper-prone paper service files, maintains service histories and performance reports, and generates QR-coded transfer and posting orders to prevent forgery ("Police Launch New App," 2022). Records, however, do not insulate postings from politics. Where patronage determines transfers (Malik & Qureshi, 2021), HRMIS may record arbitrary transfers more efficiently without preventing them. Its latent value is in accountability: a full, time-stamped posting record could enable Public Safety Commissions or courts to detect politically motivated transfers, but only if it is available to an independent forum (Bovens, 2007).

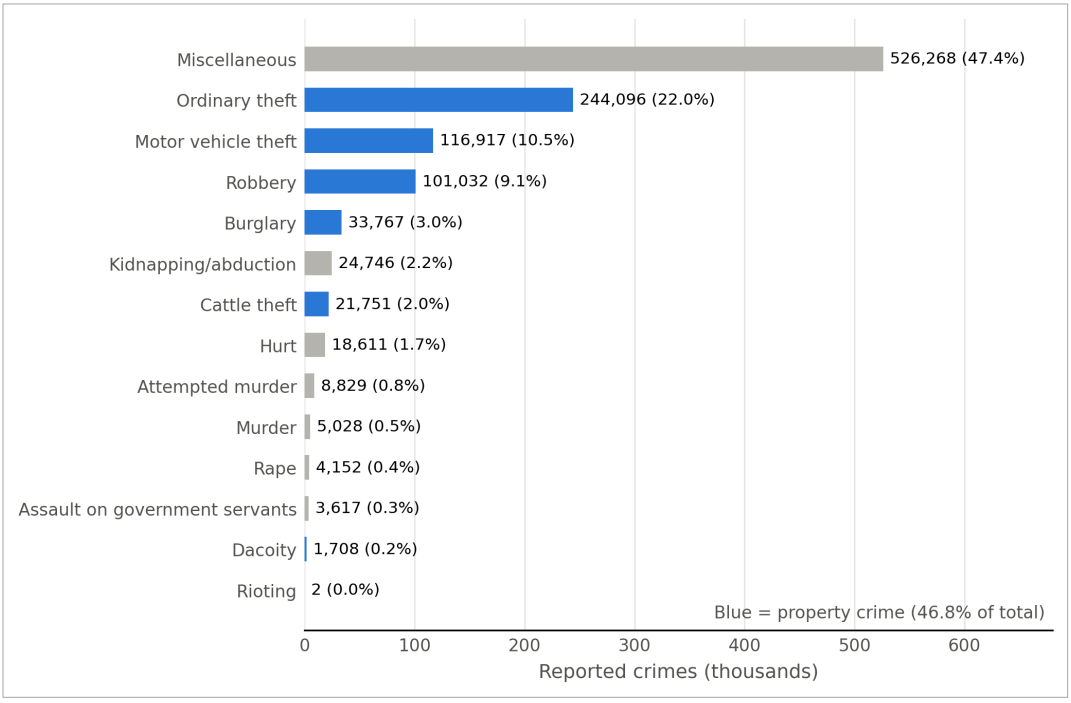
Technological Reform: The Scale of Outputs

Technology is the most aggressively pursued reform type. The PSRMS records FIRs at police stations across the province (Afzal & Panagiotopoulos, 2024), and in April 2026 the Inspector General ordered its NADRA-linked biometric module activated at all stations, making biometric verification mandatory for complaint registration and suspect documentation (The Nation, 2026). A centralized Criminal Record Management System (CRMS) links fingerprint records across districts, and the Anti-Vehicle Lifting System (AVLS) centralizes stolen-vehicle data ("Police Launch New App," 2022). For field identity checks, the Citizen Biometric Verification System lets officers at checkpoints and in search operations scan a suspect's fingerprint and national identity number on a handheld device that queries NADRA records, the CRMS, and registers of wanted offenders (The Nation, 2026); no current deployment or usage figures are published. The Safe City network reached about 17,000 cameras by June 2026 (Sohaib, 2026). Each system extends the reach of central records into street-level encounters, and each is reported publicly through counts of installations rather than measures of use.

The demand these systems must serve is great. Police recorded 1,110,524 crimes in Punjab in 2023: property offences accounted for 46.8%, offences against the person for 5.9%, and a residual "miscellaneous" category for 47.4% (BOS, 2024; Figure 1). BOS publishes no definition of the residual category; if, as its size suggests, it includes offences under local and special laws, much of it reflects proactive enforcement rather than citizen-initiated demand. Among the 584,256 offences recorded under named heads, property crime accounted for 88.9%, and motor vehicle theft alone for 116,917 cases.

Figure 1

Reported Crimes in Punjab, 2023, by Category (N = 1,110,524). Blue Bars denote Property Offences (46.8% of the Total)



Source: Bureau of Statistics Punjab (BOS, 2024), table "Crime statistics, the Punjab: 2023" (source note: Deputy Inspector General of Police [Crimes], Punjab).

International evidence shows that scale does not equal effect. CCTV is associated with a substantial yet modest reduction in crime with larger effects when active monitoring is present and combined with other interventions (Piza et al., 2019). Unless directed otherwise by management, officers add technology to their reactive routines (Lum et al., 2017). The analytical question for Punjab is whether IC3 monitoring results in rapid, accountable field response; camera counts don't answer it, and no clearance or response-time data have been released.

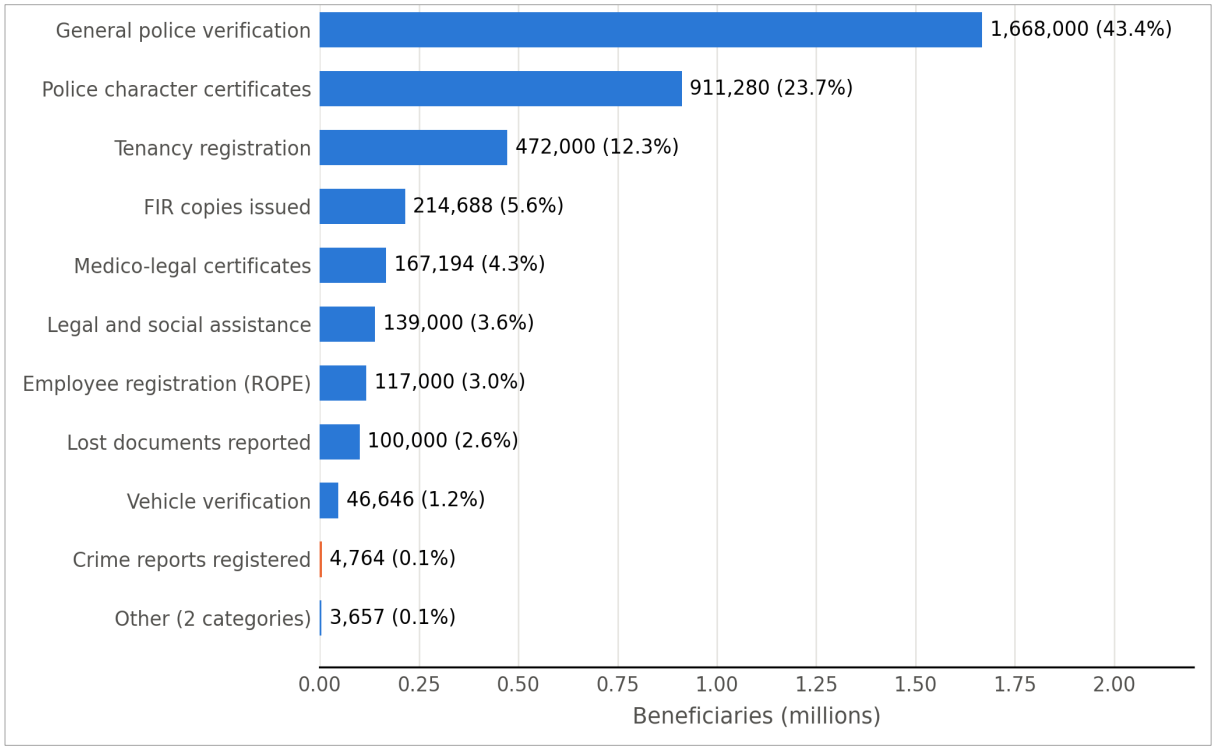
The same logic applies to information systems. A survey of 292 Punjab officers shows that the perceived benefits of the PSRMS depend on officers' coping strategies, digital discretion and sense of control (Afzal & Panagiotopoulos, 2024): the system is embedded in routine work, but its effects are filtered through the street-level discretion it was meant to discipline (Buffat, 2015; Lipsky, 2010). Punjab's own experimental record shows that managerial uptake is decisive. A smartphone monitoring app for health inspectors raised inspections by 104% after six months, but the effect had fallen to a statistically insignificant 44% after a year; flagging poorly performing facilities on a dashboard viewed by senior officials raised doctor attendance by 75% (Callen et al., 2020). What converts data into performance is a principal willing to act on it.

Cultural Reform: Service Volume, Unequal Reach

PKM sits at the boundary between structural and cultural reform, and the composition of its demand shows what citizens seek from the reformed interface. PKM served 3.84 million citizens in 2025 (APP, 2025; single source). General police verification and character certificates accounted for 67.1% of beneficiaries, whereas crime reports numbered 4,764, or 0.1% (Figure 2). Set against the 1.11 million crimes recorded in 2023 (BOS, 2024), PKM crime reports equal less than 0.5% of annual provincial volume, an indicative comparison because the figures refer to different years.

Figure 2

Police Khidmat Marakiz Beneficiaries by Service, 2025 (N = 3,844,229). Crime Reports Registered (Orange) Account for 0.1%



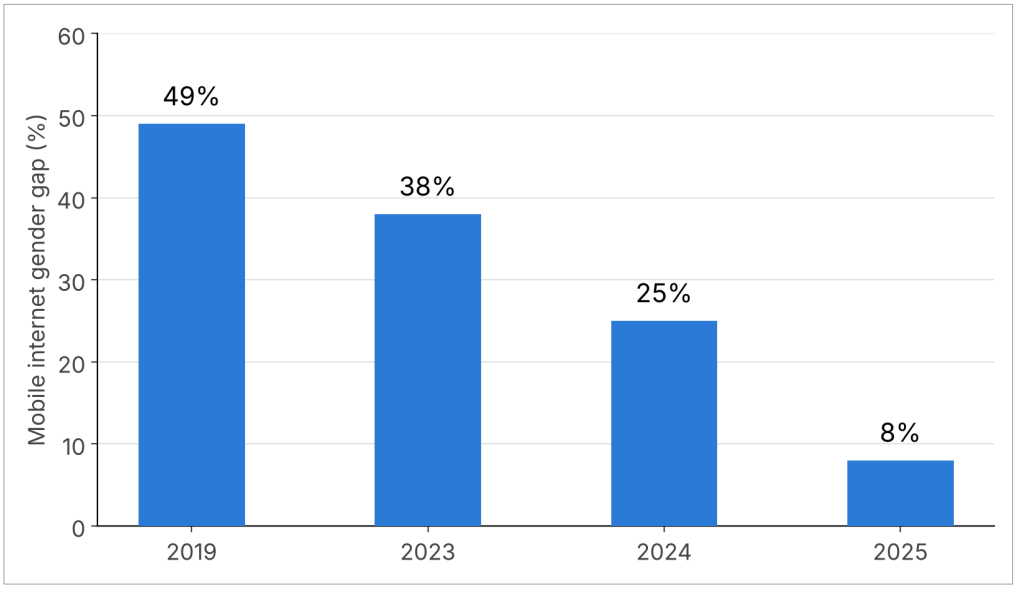
Source: Inspector General of Police, Punjab, year-end figures reported by APP (2025). Items reported as "over" a value are shown at that value; the itemized sum matches the reported total.

This is the pattern the typology anticipates. E-government reduces petty corruption only for services in which contact with street-level officials can be avoided (Kalesnikaite et al., 2023). Certification can be moved to a counter; FIR registration, investigation, and checkpoint encounters cannot. Crime registration, the core function citizens expect of the police, therefore remains anchored in the precinct, where the SHO's gatekeeping power remains a source of both authority and rent (Malik & Qureshi, 2021). Registration is also where street-level rationing is most consequential: under chronic resource constraints, frontline officials control demand by limiting access (Lipsky, 2010), and a reform that leaves the decision to record a crime with the station has digitized the record without touching the rationing decision that precedes it.

Reach is unequal, although the pattern is changing quickly. In 2019, women in Pakistan were 38% less likely than men to own a mobile phone and 49% less likely to use mobile internet, figures DRF (2020) cited in questioning the reach of the Women Safety App. The mobile internet gap narrowed to 38% in 2023 and 25% in 2024 (GSMA, 2025) and to 8% in 2025, while the ownership gap fell from 37% to 27% between 2024 and 2025 (GSMA data as reported in Dawn, 2026; Figure 3). A government summary of the same survey reports mobile internet adoption of 53% for women and 58% for men in 2025 (MoITT, 2026), consistent with the reported gap after rounding.

Figure 3

Gender Gap in Mobile Internet Adoption in Pakistan, 2019-2025 (Percentage by Which Women are Less Likely than Men to Use Mobile Internet)

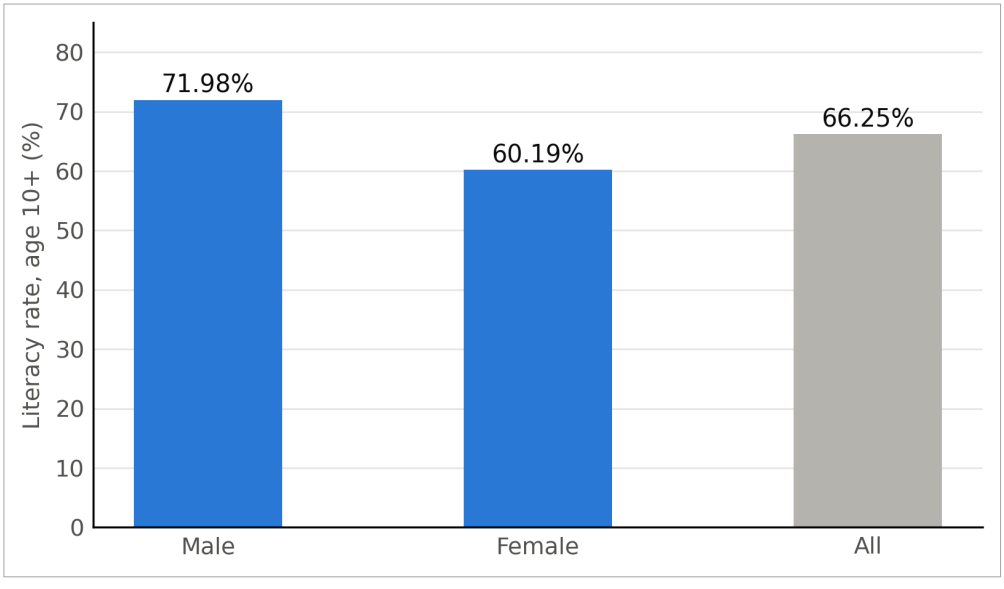


Source: 2019: GSMA Consumer Survey as reported in DRF (2020); 2023-2024: GSMA (2025); 2025: GSMA Mobile Gender Gap Report 2026 as reported in Dawn (2026).

Access is therefore a weaker constraint than when most of Punjab's citizen-facing applications were launched, but others persist. Among women mobile internet users, 28% go online only through someone else's device, which limits confidential reporting of matters such as domestic violence, and literacy and digital skills are the most frequently cited barrier among non-users of both sexes (MoITT, 2026). The 2023 Census records literacy of 71.98% for men but 60.19% for women (PBS, 2023), a gap of 11.8 percentage points that constrains women's use of text-based services (Figure 4) in a province where 59.3% of residents are rural.

Figure 4

Literacy Rates for the Population Aged 10 and above, Punjab, 2023. Women Trail Men by 11.8 Percentage Points



Source: PBS (2023).

Surveillance expansion raises distinct legitimacy risks. Without data-protection law or algorithmic audit, Safe City analytics extend the institution's knowledge of citizens without any reciprocal visibility (Zuboff, 2019), and may launder discretionary suspicion through apparent technical objectivity (Brayne, 2017). Trust-building initiatives have not compensated. Across six field experiments in the Global South, including one in Punjab, community policing failed to improve citizen-police relations or reduce crime (Blair et al., 2021).

Synthesis

Table 4 and Figure 5 consolidate the ratings. On extent of implementation, technological reform ranks highest (8 of a possible 15), led by deployment (E = 3). Legal and cultural reform rank lowest (3 of 15 each): the former because statutory change has not reached procedure, the latter because service volume has grown without equitable reach or trust outcomes. PKM and HRMIS score moderately on deployment but low on integration. No reform type scores above 1 on outcome attainment, and legal embedding is weak for all four types.

The evidence ratings qualify this picture in two ways. First, the matrix rests mostly on administrative or documentary evidence: 12 of the 20 cells are rated S = 2, five rest on a single source (S = 1), and only three are supported by independent evaluation or primary law (S = 3). The high technological deployment score is a well-corroborated administrative finding, not an audited one. Second, the strongest evidence in the matrix concerns an absence of effect: the Punjab arm of a six-country randomized trial found that community policing did not improve trust (Blair et al., 2021). The resulting profile is one of wide but shallow modernization, documented mainly by the implementing agencies themselves.

The GSMA data do not alter the reach ratings. They show a steep decline in the gender gap in mobile internet access, but the reach dimension concerns citizens' capacity to use and benefit from police systems (Table 3), and the same sources document a 27% ownership gap, shared-device dependence and an 11.8-point literacy gap. No data on the uptake of police applications by gender or location are available, so technological and cultural reach remain at E = 1, S = 2.

Table 4

Extent of Implementation (E) and Strength of Evidence (S) by Reform Type and Dimension

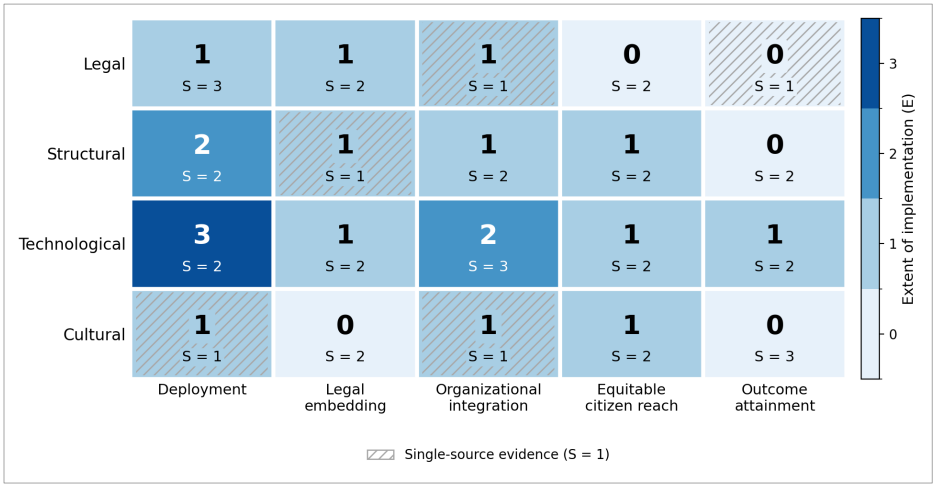
Type	Dimension	E	S	Principal evidentiary basis
Legal	Deployment	1	3	PECA 2016 and Qanun-e-Shahadat Art. 164 enacted; no data-protection or digital-procedure statute (primary legislation; Khan & Khan, 2026)
Legal	Legal embedding	1	2	CrPC 1898 not amended for digital evidence; courts treat digital evidence as corroborative (Code of Criminal Procedure, 1898; Hameed, 2021)
Legal	Organizational integration	1	1	No public digital-evidence SOP located; authentication failures in court (Hameed, 2021)
Legal	Equitable citizen reach	0	2	No data-protection statute (DRF, 2018; Khan & Khan, 2026)
Legal	Outcome attainment	0	1	No digital-specific trial-outcome data located
Structural	Deployment	2	2	PKM served 3.84 million users in 2025 (APP, 2025); HRMIS ("Police Launch New App," 2022); Front Desks (Chattha et al., 2019)
Structural	Legal embedding	1	1	Regulatory basis of PKM and Front Desks not documented in published sources

Type	Dimension	E	S	Principal evidentiary basis
Structural	Organizational integration	1	2	Crime reports 0.1% of PKM transactions (APP, 2025); separate Front Desk training (Chattha et al., 2019)
Structural	Equitable citizen reach	1	2	PKM demand concentrated in certification (APP, 2025); 59.3% of residents rural (PBS, 2023)
Structural	Outcome attainment	0	2	No measured shift of crime registration to PKM or change in posting stability (APP, 2025; BOS, 2024)
Technological	Deployment	3	2	About 17,000 cameras in 43 cities (Sohaib, 2026); PSRMS in use, biometric module ordered at all stations (Afzal & Panagiotopoulos, 2024; The Nation, 2026)
Technological	Legal embedding	1	2	No statutory basis for surveillance data retention or audit (DRF, 2018; Khan & Khan, 2026)
Technological	Organizational integration	2	3	PSRMS embedded in routine work; survey of 292 officers (Afzal & Panagiotopoulos, 2024)
Technological	Equitable citizen reach	1	2	Ownership gap and shared-device dependence (Dawn, 2026; MoITT, 2026); literacy gap (PBS, 2023)
Technological	Outcome attainment	1	2	Officer-perceived gains only (Afzal & Panagiotopoulos, 2024); no clearance or response-time data
Cultural	Deployment	1	1	Women Safety App and complaint system launched (DRF, 2020); conduct training undocumented
Cultural	Legal embedding	0	2	Police Order 2002 oversight bodies diluted in 2004 and not fully implemented (Police Order, 2002; NCHR, 2018)
Cultural	Organizational integration	1	1	No documented procedural-justice component in supervision or appraisal
Cultural	Equitable citizen reach	1	2	4,764 crime reports among 3.84 million PKM users (APP, 2025); gender and literacy gaps (MoITT, 2026; PBS, 2023)
Cultural	Outcome attainment	0	3	Punjab community-policing trial showed no effect on trust (Blair et al., 2021); low baseline trust (Hassan, 2025)

Note: E totals (of 15): legal 3, structural 5, technological 8, cultural 3. Scales are defined in Table 2 and dimensions in Table 3.

Figure 5

Extent of Implementation (E; Shading and Numeral) and Strength of Evidence (S; Beneath) by Reform Type and Dimension. Hatched Cells Rest on Single-source Evidence (S = 1)



Source. Authors' ratings using the scales in Table 2, the definitions in Table 3, and the evidence in Table 4.

Discussion

Performative Digitization: Why Outputs Outrun Outcomes

The findings document a pronounced asymmetry, and the capability-trap literature explains why. Technology is the easiest reform to procure: it can be purchased, delegated to specialized agencies, and displayed. Legal, structural, and cultural change require legislation, the surrender of political control over postings, and sustained change in officer behaviour. Where incumbents gain from the old order, reform produces new forms without new function (Pritchett et al., 2013), and low state capacity combined with neo-patrimonial politics makes democratic police reform unlikely without elite commitment (O'Shea, 2023). Punjab presents the digital analogue: infrastructure has developed rapidly within an unreformed institutional shell. Service volume is impressive (Figure 2), but crime registration remains anchored in the precinct.

Each type meets the expectations. Data have not translated into prosecutions. Legal reform has created offenses and admissibility provisions, but not a digital procedure. Structural reform introduced service counters and digital personal files, but postings were still based on patronage, creating parallel nodes rather than integration. Technology reform had the highest deployment score, but its outcome score is limited by the lack of the legal and managerial complements on which the comparative evidence says its effects depend. Low-stakes certification moved online as part of cultural reform, while high-stakes encounters continued at the thana. Interactions are more important than any one score, with technological outputs high where they need least from law and politics, and outcomes low where they need most.

Performative digitization is much more than cosmetic. Its outputs are real, but valued as signals of modernity in a political economy that rewards visible delivery. The reform is heralded by camera counts, service tallies and app launches, and these are the metrics most easily reported. Premature load-bearing follows (Pritchett et al., 2013): systems are expected to deliver accountability and trust that the surrounding legal and organizational order cannot yet provide, and their failure to do so risks discrediting the tools rather than the order.

Administrative Centralization Without Institutional Democratization

The second implication is about the direction of power redistribution through digitization. PSRMS, HRMIS, CRMS and the IC3 centers add to what the provincial command sees: registrations, postings, criminal records and street activity. This is concentration of administration. Institutional democratization, however, would require that this visibility is available to fora outside the chain of command, such as Public Safety Commissions, courts, and data-protection regulators that can question, judge, and sanction (Bovens, 2007). These forums are either weak or non-existent (NCHR, 2018; Khan & Khan, 2026). This results in the asymmetry Zuboff (2019) describes: the institution's knowledge of citizens and subordinates grows, but citizens' knowledge of the institution does not.

Centralization does not eliminate street-level discretion; it simply shifts it. The Punjab case is supportive of a synthesis of the curtailment and enablement theses (Buffat, 2015). Digital systems break the SHO's monopoly over registration for low-stakes services, while discretion remains and may become less visible in the front office, at the checkpoint, and in the data record itself (Lipsky, 2010). O'Shea (2023), however, suggests a qualified path for post-Soviet reform: partial reform is possible where a regime values effectiveness and anti-corruption. Punjab's infrastructure could serve such a strategy, if it were used to enforce standards of performance and integrity. At the moment, it serves to display more than enforce.

Theoretical Implications

Three implications follow for theory. First, models that treat e-government maturity as technological progression misread reform in post-colonial security institutions, where the binding constraint on digital dividends is legal and

political. DEG's prerequisites of reintegration and needs-based holism (Dunleavy et al., 2006) are precisely what Punjab's parallel-node architecture lacks. Second, the output-outcome distinction should be built into measurement: the two-axis rubric shows that conflating extent with evidence would have overstated technological reform and understated the evidential weakness of the record. Third, sequencing matters. Blair et al. (2021) suggest that citizen-facing initiatives may require structural reform as a prerequisite; the Punjab evidence is consistent with that view, though a single case cannot establish the counterfactual. The strongest effects in the literature arise when technology is coupled with complementary change, such as CCTV with active monitoring (Piza et al., 2019), dashboards with senior managerial response (Callen et al., 2020) and help desks with trained, representative staff (Sukhtankar et al., 2022).

Policy Implications

Five reforms follow. First, the legislatures with competence over criminal procedure and evidence should amend the CrPC to codify digital forensic protocols covering retrieval, chain of custody, and authentication, closing the gap left by the 2025 PECA amendment (Hameed, 2021). Second, digital competence should be built into the sworn investigative cadre rather than confined to a civilian front office, with officers involved in the design of the systems they use (Afzal & Panagiotopoulos, 2024), and PKM should be developed as a genuine crime-registration channel, drawing on evidence from help-desk reforms (Sukhtankar et al., 2022). Third, as the gender gap in mobile access closes, service design should address the remaining constraints through low-literacy voice and pictorial interfaces, assisted channels at PKM and Front Desks, and privacy safeguards for women who share devices (MoITT, 2026). Fourth, Public Safety Commissions should be reconstituted with independent members and given access to HRMIS and surveillance records, and a data-protection statute should enable audit of PSCA analytics (Bovens, 2007; NCHR, 2018). Finally, new programmes should be piloted with experimental or quasi-experimental designs and adapted iteratively, building on Punjab's record of large-scale field experiments in public administration (Blair et al., 2021; Callen et al., 2020) and on problem-driven alternatives to best-practice transplantation (Pritchett et al., 2013).

Limitations

Five limitations qualify the findings. First, administrative data are reported by implementing agencies, often lack denominators and time series, and could not be independently verified; several key figures reach the public only through news reports of official statements. Second, the extent and evidence ratings are analytical judgements, not measurements; reporting the basis for every cell makes them contestable but not objective. Third, the single-case design limits generalizability. Fourth, prioritizing experimental evidence and a single academic search engine favours English-language research from the Global North and may omit records indexed only in regional or legal databases. Fifth, some indicators are changing fast, as the mobile gender gap shows. Future research should evaluate the PSRMS, PKM and Safe City programmes with experimental or quasi-experimental designs, survey officers and citizens with gender- and location-disaggregated data and examine the handling of digital evidence in Pakistani trial courts.

Conclusion

Between 2015 and 2026, the Punjab Police built one of the most ambitious digital policing infrastructures in Pakistan, but its reform trajectory has been asymmetric. Technological deployment has outpaced legal embedding, organizational integration, and equitable reach, and output volume has exceeded demonstrable outcomes. We interpret this as performative digitization: a digital form of isomorphic mimicry in which administrative centralization advances while institutional democratization stalls. The international evidence points in one direction: policing technology yields its best returns when combined with legal certainty, managerial reform and behavioural

change, and digital interfaces cannot engineer citizen trust. Converting Punjab's infrastructure into legitimate and effective policing requires statutory synchronization, insulation of structural reform from patronage, inclusive design and independent oversight. The four-type typology and two-axis rubric offer a portable instrument for testing whether the asymmetry documented here is the exception or the rule in post-colonial police reform.

References

Afzal, M., & Panagiotopoulos, P. (2024). Coping with digital transformation in frontline public services: A study of user adaptation in policing. *Government Information Quarterly, 41*(4), Article 101977. https://doi.org/10.1016/j.giq.2024.101977

Associated Press of Pakistan. (2025, December 28). *Punjab Police Khidmat Marakaz served over 3.8m citizens in 2025*. https://www.app.com.pk/domestic/punjab-police-khidmat-marakaz-served-over-3-8m-citizens-in-2025/

Bhattacherjee, A., & Shrivastava, U. (2018). The effects of ICT use and ICT laws on corruption: A general deterrence theory perspective. *Government Information Quarterly, 35*(4), 703-712. https://doi.org/10.1016/j.giq.2018.07.006

Blair, G., Weinstein, J. M., Christia, F., Arias, E., Badran, E., Blair, R. A., Cheema, A., Farooqui, A., Fetzer, T., Grossman, G., Haim, D., Hameed, Z., Hanson, R., Hasanain, A., Kronick, D., Morse, B. S., Muggah, R., Nadeem, F., Tsai, L. L., . . . Wilke, A. M. (2021). Community policing does not build citizen trust in police or reduce crime in the Global South. *Science, 374*(6571), Article eabd3446. https://doi.org/10.1126/science.abd3446

Bovens, M. (2007). Analysing and assessing accountability: A conceptual framework. *European Law Journal, 13*(4), 447-468. https://doi.org/10.1111/j.1468-0386.2007.00378.x

Brayne, S. (2017). Big data surveillance: The case of policing. *American Sociological Review, 82*(5), 977-1008. https://doi.org/10.1177/0003122417725865

Buffat, A. (2015). Street-level bureaucracy and e-government. *Public Management Review, 17*(1), 149-161. https://doi.org/10.1080/14719037.2013.771699

Bureau of Statistics Punjab. (2024). *Punjab in figures 2024*. Planning and Development Board, Government of the Punjab. https://bos.punjab.gov.pk/system/files/PIF%20%202024%20updating%20%2025-04-2025.pdf

Callen, M., Gulzar, S., Hasanain, A., Khan, M. Y., & Rezaee, A. (2020). Data and policy decisions: Experimental evidence from Pakistan. *Journal of Development Economics, 146*, Article 102523. https://doi.org/10.1016/j.jdeveco.2020.102523

Chattha, S. J., Batool, B., & Farooq, M. S. (2019). Modernization of Front Desk Project (FDP) training curriculum for Punjab Police. *IJAEDU - International E-Journal of Advances in Education, 5*(14), 222-230. https://doi.org/10.18768/ijaedu.531553

Code of Criminal Procedure, 1898, Act No. V of 1898 (Pakistan). https://pakistancode.gov.pk

Dawn. (2026, July 2). *Pakistan leads global progress in 'bridging mobile gender gap'*. https://www.dawn.com/news/2012291

Digital Rights Foundation. (2018, August 14). *Punjab government's Safe Cities project: Safer city or over policing?* Privacy International. https://privacyinternational.org/news-analysis/2228/punjab-governments-safe-cities-project-safer-city-or-over-policing

Digital Rights Foundation. (2020, November 11). *Punjab Police Women Safety App: Old approach, new interface*. https://digitalrightsfoundation.pk/punjab-police-women-safety-app-old-approach-new-interface/

Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2006). New public management is dead—Long live digital-era governance. *Journal of Public Administration Research and Theory, 16*(3), 467-494. https://doi.org/10.1093/jopart/mui057

GSMA. (2025, June 25). *A breakthrough year for women's digital inclusion in Pakistan*. GSMA Mobile for Development. https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/gsma_resources/a-breakthrough-year-for-womens-digital-inclusion-in-pakistan/

Hameed, U. (2021). Admissibility of digital evidence: A perspective of Pakistani justice system. *Pakistan Social Sciences Review, 5*(4), 518-530. https://doi.org/10.35484/pssr.2021(5-iv)40

Hassan, B. (2025). Procedural and functional sources of trust in police in Pakistan. *Journal of Police and Criminal Psychology, 40*(1), 239-250. https://doi.org/10.1007/s11896-025-09734-w

Jackson, J., Asif, M., Bradford, B., & Zakar, M. Z. (2014). Corruption and police legitimacy in Lahore, Pakistan. *British Journal of Criminology, 54*(6), 1067-1088. https://doi.org/10.1093/bjc/azu069

Kalesnikaite, V., Neshkova, M. I., & Ganapati, S. (2023). Parsing the impact of e-government on bureaucratic corruption. *Governance, 36*(3), 827-842. https://doi.org/10.1111/gove.12707

Khan, S., & Khan, S. H. (2026, March 10). *Data protection & privacy 2026: Pakistan*. Chambers and Partners Global Practice Guides. https://practiceguides.chambers.com/practice-guides/data-protection-privacy-2026/pakistan

Lipsky, M. (2010). *Street-level bureaucracy: Dilemmas of the individual in public services* (30th anniversary expanded ed.). Russell Sage Foundation.

Lum, C., Koper, C. S., & Willis, J. (2017). Understanding the limits of technology's impact on police effectiveness. *Police Quarterly, 20*(2), 135-163. https://doi.org/10.1177/1098611116667279

Malik, N., & Qureshi, T. A. (2021). A study of economic, cultural, and political causes of police corruption in Pakistan. *Policing: A Journal of Policy and Practice, 15*(2), 1446-1462. https://doi.org/10.1093/police/paaa016

Ministry of Information Technology and Telecommunication. (2026). *Pakistan mobile gender gap data: Based on findings from the GSMA Consumer Survey 2025*. Government of Pakistan. https://moitt.gov.pk/SiteImage/Publications/Pakistan%20Mobile%20Gender%20Gap%20Data_June.pdf

National Commission for Human Rights. (2018). *Police reforms* [Report]. https://nchr.gov.pk/wp-content/uploads/2023/09/Police-Reforms-Report-2018.pdf

O'Shea, L. (2023). Why democratic police reform mostly fails and sometimes succeeds: Police reform and low state capacity, authoritarianism and neo-patrimonial politics (in the former Soviet Union). *Policing and Society, 33*(3), 245-263. https://doi.org/10.1080/10439463.2022.2106983

Pakistan Bureau of Statistics. (2023). *7th Population and Housing Census-2023: Provincial census report, Punjab*. Ministry of Planning, Development and Special Initiatives, Government of Pakistan. https://www.pbs.gov.pk/wp-content/uploads/2020/07/Provincial-Census-Report-2023-Punjab.pdf

Piza, E. L., Welsh, B. C., Farrington, D. P., & Thomas, A. L. (2019). CCTV surveillance for crime prevention: A 40-year systematic review with meta-analysis. *Criminology & Public Policy, 18*(1), 135-159. https://doi.org/10.1111/1745-9133.12419

Police Act, 1861, Act No. V of 1861 (British India).

Police launch new app. (2022). *The Express Tribune*. https://tribune.com.pk/story/2388798/police-launch-new-app

Police Order, 2002, Chief Executive's Order No. 22 of 2002 (Pakistan).

Prevention of Electronic Crimes Act, 2016, Act No. XL of 2016, as amended by the Prevention of Electronic Crimes (Amendment) Act, 2025, Act No. II of 2025 (Pakistan).

Pritchett, L., Woolcock, M., & Andrews, M. (2013). Looking like a state: Techniques of persistent failure in state capability for implementation. *Journal of Development Studies, 49*(1), 1-18. https://doi.org/10.1080/00220388.2012.709614

Qanun-e-Shahadat Order, 1984, President's Order No. 10 of 1984 (Pakistan).

Seawright, J., & Gerring, J. (2008). Case selection techniques in case study research: A menu of qualitative and quantitative options. *Political Research Quarterly, 61*(2), 294-308. https://doi.org/10.1177/1065912907313077

Sohaib, R. (2026, June 8). Punjab completes Safe Cities camera network across all districts. *ProPakistani*. https://propakistani.pk/2026/06/08/punjab-completes-safe-cities-camera-network-across-all-districts/

Sukhtankar, S., Kruks-Wisner, G., & Mangla, A. (2022). Policing in patriarchy: An experimental evaluation of reforms to improve police responsiveness to women in India. *Science, 377*(6602), 191-198. https://doi.org/10.1126/science.abm7387

The Nation. (2026, April 7). *Punjab police rolls out biometric verification system in all police stations*. https://www.nation.com.pk/07-Apr-2026/punjab-police-rolls-biometric-verification-system-police-stations

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. PublicAffairs.