

Digital Governance: Change Management and Administrative Transformation in the Tamil Nadu Police Department

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DIGITAL GOVERNANCE: CHANGE MANAGEMENT AND ADMINISTRATIVE TRANSFORMATION IN THE TAMIL NADU POLICE DEPARTMENT

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Abstract

The Tamil Nadu Police Department (TNPd) is the first government department in Tamil Nadu to implement the e-Office system, which other government departments have since replicated. This early lead makes the TNPd e-Office transformation an interesting public-sector change-management case study. The executive wing of TNPd has a reputation for its efficiency. Still, the department has a history of administrative inefficiency, including delayed complaint resolution, slow promotions, and slower public service delivery. There was strong opposition to the e-Office concept to improve these through paperless administration, especially from lower-level staff who were deterred by the technology and the disruption it would cause to their work. The research is qualitative, which employs Grounded Theory methodology and is part of the Interpretivist research paradigm. Using purposive maximum variation sampling, 13 officers who represented different levels of the organisational hierarchy were interviewed using a semi-structured approach. Theoretical sampling was used to collect data until theoretical saturation was attained. The results revealed that the resistance was highest at the lower levels because of the concerns of increased transparency, extra work, and lack of digital literacy. Another area of institutional resistance was from informal system beneficiaries who were afraid of the accountability that digital trails would bring. The key implementation strategies were the top-down cascade (physical and digital filing systems), multi-modal training strategy (training videos in the Tamil language, WhatsApp support groups in the districts, a network of master trainers and role-based training). Support for the age groups facilitated equitable adaptation; younger, IT-trained trainers acted as a critical link. A compliance management system known as the 'firewall' system prevented the return to paper-based processes. It uses the Technology–Organisation–Environment (TOE) framework as a sensitising theory, with three new sub-dimensions for the hierarchical environment of the

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Indian public sector. The research concludes that the good practices in TNPD offer a replicable blueprint for government departments facing human and institutional problems in digital governance reform, and offers practical suggestions to sustain change, fill gaps and implement change management into the hierarchical structure of public organisations.

Keywords: Sustainable, development-Office, Tamil Nadu Police Department, government department, anonymised participant's profile, digital literacy, master-trainer, YouTube channel, TNSWAN bandwidth issues, DGP office, human–AI collaboration.

1. Introduction

Sustainable public service and governance are built on a strong administrative system. However, the Tamil Nadu Police Department (TNPD) had been one of the departments that were lacking in efficiency when it came to having a proper office system. TNPD was known for its executive functions, such as crime investigation, law and order maintenance, and public safety, but had problems with delayed service delivery and operational inefficiency. There was also a high level of dissatisfaction in the system due to delayed grievance redressal, delayed promotions and the poor handling of terminal benefits for officers' families. The transparency of the processes and the delays in the answers to the petitions were experienced as difficulties by members of the public. But the root cause of these challenges was an antiquated system with more manpower and too few resources. With exponential delays and inefficiencies, the department was in dire need of modernisation with digital solutions. The e-Office initiative, launched in August 2018 from the Directorate General of Police (DGP) headquarters in Chennai, was a game-changer in addressing these structural shortcomings. The TNPD is the first Government office in Tamil Nadu to go totally paperless, with the implementation of the e-Office software developed by the National Informatics Centre (NIC) under MEITY (Ministry of Electronics and Information Technology) with the Tamil Nadu e-Governance Agency (TNeGA) as the Nodal agency. This first mover advantage has made the TNPD implementation a replicable blueprint, which has been followed by the Tamil Nadu Secretariat and other State departments. The transition to digitisation of police administration is not just a technical one. Digitalisation has become an important driver of policy changes globally, as seen in the West since the 1980s, and as confirmed by an OECD (2019) report. The use of digital technologies by the Police Department is part of the development of contemporary society, which is increasingly characterised by the connectivity of digital devices, people and organisations. However, in India, this change takes place in a very unique socio-cultural and institutional context, defined by hierarchical structures, high levels of power distance (Hofstede, 1980), a conservative attitude towards reform within the police, and a wide range of digital literacy among employees. This study is designed to explore the human, institutional and technical hurdles encountered in the TNPD's implementation of e-Office. The study is a qualitative research design using Grounded Theory methodology, with a total of 13 officers from the vertical and functional spectrum of the implementation ecosystem who were interviewed in a semi-structured manner. The theoretical approach used is the Technology-Organisation-Environment (TOE) model (DePietro, Wiarda & Fleischer, 1990) with its unique features of the Indian Police bureaucratic context. The study attempts to answer the following research questions:

1. RQ-1 What were the main problems in implementing the e-Office system in TNPD?
2. RQ-2 What key factors helped the e-Office programme to be successful?
3. RQ-3 In what ways did the hierarchy of the organisational structure of TNPD affect the approach to and implementation of adoption?

4. RQ-4 How much have the cultural aspects that are specific to the Indian context influenced the pattern of resistance and results of adoption?
5. RQ-5. What was the effectiveness of the capacity-building and training efforts in reducing resistance to technology uptake by various stakeholder groups?
6. RQ-6 How can the experience of implementing the TNPD e-Office be applied to other digitalisation projects in the public sector in a similar cultural context?

This work has two major contributions to the knowledge. First, it brings a better understanding of the factors influencing the adoption of digital technologies in hierarchical Indian public organisations, with an overview of factors specific to the adoption of e-Office in the Police department. Secondly, it extends the TOE body of knowledge by suggesting three new sub-dimensions within it that are based on the Indian bureaucratic setting. The paper is structured as follows: unique challenges in the Indian context, literature review, theoretical framework, research methodology, results, findings and discussion, practical implications and conclusion.

2. Challenges beyond the Indian perspective.

The adoption of the e-Office system in TNPD provides a glimpse into the digital age in India. The project was successful, but it also sought to bring to light certain issues that are commonplace in the Indian socio-cultural milieu and infrastructural fabric. The challenges are analogous in the West but are significantly amplified in India because of a unique cultural context that has traits of risk avoidance, bureaucratic conservatism, high power distance and entrenched social norms in relation to authority and information control. Innovation is an impediment largely due to the risk aversion of public institutions in India, like TNPD. Indian bureaucracies tend not to like change even when the existing system is proven to be inefficient. The e-Office rollout was impacted by this directly: concerns were raised about the possible disruption in processes, loss in productivity and political implications if the rollout went wrong. These challenges are understood within cultural dimensions. India's score on Power Distance (PD) in Hofstede's (1980) Model is 77, which is one of the highest in the world, thereby determining the nature of decision-making, the nature of opposition and the setting in which compliance is required rather than desired. India's collectivistic culture adds to the complexity of digital transformation as it affects group norms that are higher than individual incentives and control the sharing and access to information. Senior workers are more likely to have a traditional orientation, which leads to commitment to existing manual practices. The reluctance to change seen in TNPD is not only operational, but also social, reflecting a system historically more geared toward keeping things as they are than to fostering innovation, as Van Veenstra et al. (2011) recognise as a recurring obstacle in agency-level transformational government initiatives. Infrastructure issues add to these cultural factors. Structural inequalities arising from the lack of digital literacy among officers who were recruited before and after computerisation, and differences in the availability of hardware and connectivity between urban headquarters and district offices, exist. They are not just a by-product of the TNPD context, but they are characteristics of the implementation of a national digital platform in a geographically distributed organisation with more than 1.25 lakh employees distributed across 39 districts.

3. Literature Review

Citizen-centric solutions through the use of Information and Communication Technology (ICT) advancement is one of the determining factors of the change in the pathway of governance (Chauhan & Kaushik, 2016). In e-governance, ICTs are used to provide public

services electronically, making them transparent, accessible for citizens without bureaucratic hurdles and more efficient (Stemberger & Jaklic, 2007; Singh & Sahu, 2018). With the advent of digital transformation by governments around the world, e-governance can play a role in streamlining the public administration to create cooperative, polycentric governance structures (Leitner, 2003). Saxena (2005) has traced India's e-governance journey back to the late 90s when the National Informatics Centre (NIC) was used as a catalyst for introducing ICT in government departments. In 2006, the National e-Governance Plan (NeGP) was launched, giving a structured plan for implementation through Mission Mode Projects (MMPs) for citizen-centric schemes such as making passports, income tax and land records. This was extended as part of the Digital India programme of 2015 that encompassed digital governance under one roof (Heeks, 2008).

The Aadhaar unique identification system (Banerjee et al., 2019), the Common Service Centre and e-Seva programme (Pathak et al., 2010) and finally, the e-Office suite developed by the NIC, are all a part of the journey of digital transformation. Multiple theories of technology adoption explain the organisation's adoption of digital technology. They are the Theory of Planned Behaviour (Ajzen, 1985), the Diffusion of Innovations (DOI) theory (Rogers, 1983, 2003), the Structuration Theory (Giddens, 1991), the Technology–Organisation–Environment (TOE) framework (DePietro et al., 1990), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), and the Adaptive Structuration Theory (DeSanctis and Poole, 1994). The TOE framework is one of these, and is widely used in developing countries for e-Government adoption (Alfiani et al., 2024; Mahlangu et al., 2021). The change management model by Lewin (1947) (Unfreezing, Change, Refreezing) offers an alternate processual perspective of the human aspects of the TNPD transformation. The mechanisms behind the successful digital transformation of the TNPD are further contextualised by Kotter's (1996) eight-step model for leading change and Rogers' (2003) Diffusion of Innovations framework, which posits that crisis-driven adoption is more likely to be successful. The three resistance profiles found in this study are directly related to Lapointe and Rivard's (2005) three-level model of resistance to IT implementation. In the context of Police and law enforcement organisations specifically, training deficits, infrastructure heterogeneities, hierarchical leadership structures, and frontline officer coping mechanisms are recurring features that have been identified as critical success and failure factors (Laufs & Borrión, 2022; Afzal & Panagiotopoulos, 2024; Sahu, 2013).

4. Theoretical Framework:

An Extended TOE Model framework was developed by DePietro, Wiarda and Fleischer (1990) in the Processes of Technological Innovation and states that three contextual domains interact and affect an organisation's uptake and incorporation of technological innovation. Methodologically, the study is grounded in the inductive Grounded Theory approach, but the TOE framework is used as a sensitising theory; that is, it is used to shape the scope of the interview schedule and also provides the structure for the presentation of results (Gangwar, 2018; Collins & Stockton, 2018; Urquhart, Lehmann & Myers, 2010).

Table 1 relates TOE sub-dimensions to their actual expressions within the context of TNPD.

TOE Context	Standard Sub-Dimensions	Manifestation in TNPD e-Office
Technology Context	Relative advantage; compatibility with legacy systems; complexity; trialability; IT infrastructure; cybersecurity; system reliability	NIC e-Office suite; compatibility with noting-and-forwarding workflow; scanner/computer procurement via MPF; server hosting at ELCOT Data Centre; TNSWAN and connectivity; PDF compression challenges
Organisation Context	Top-management support; size/complexity; centralisation; formalisation; HR quality; absorptive capacity; slack resources; organisational culture	DGP-led top-down mandate; 1.25 lakh personnel across 39 districts; rank pyramid (DGP→Constable); IT-graduate trainer cadre; digital literacy gap; MPF funding; ministerial file culture; role-differentiated training
Environment Context	Government regulation/mandate; coercive/normative pressure; inter-agency partnerships; National ICT policy; cultural-institutional context	Tamil Nadu e-Governance Policy 2017; Digital India Programme; NIC/MEITY mandate; ELCOT procurement; TNEGA admin provisioning; IIT Madras data security advisory; high power distance (Hofstede = 77)

The TNPD case, in addition to the standard TOE dimensions, offers empirical support for three new dimensions that had not been theoretically proposed in past TOE studies for the public-sector Police setting in India: A. Compatibility with Colonial-Bureaucratic Legacy (Noting-Forwarding) — the extent to which a new system mirrors the logic and underlying culture of the legacy WFP (noting and forwarding), minimizing cultural hurdles to change. B. Rank-Based Digital Deference — in which lower-ranking officers defer decisions on digital adoption to their superiors, creating a need for top-management championing for frontline adoption. C. Transparency-Accountability Culture Shock — resistance arising because the accountability transparency enabled by digital systems is a new and different cultural norm in contexts where informal discretion had been a norm in the past (Kumar et al., 2017).

5. Research Methodology

5.1 Research Paradigm and Philosophical Stance

This study falls under the Interpretivist research paradigm (Guba & Lincoln, 1994; Creswell, 2013). Interpretivism sees society as a phenomenon that is not objective, fixed, or static, but rather is created by the experience and interaction of humans. In keeping with this tradition, the study is ontologically based on a constructivist approach and epistemologically based on an interpretive approach. The constructivist understanding of the ontology is that all the actors living in the TNPD e-Office implementation—senior architects, middle-level implementation officers, IT-graduate trainers, district-level user-officers and entry-level field staff—have their own world of realities in which the same transformation event has taken place. The interpretivist epistemology assumes that knowledge about these realities can only be produced if one is immersed in the experiences of the people involved and understands the meaning that they give to them, rather than measuring them from the outside (Charmaz, 2006).

5.2. Research design/methodology

The study is of a qualitative research type with a grounded theory approach developed by Glaser and Strauss (1967) and Strauss and Corbin (1990, 1998). It is also suitable here because the existing body of scholarly work on the implementation of e-Office in hierarchical Police organisations in India is limited and does not sufficiently explain the convergence of top-down organisational demands, cadre of IT graduates as trainers, cultural adaptation to the IT and multi-modal training ecosystem that was the context of the TNPd. A multi-informant, one-site case study design was chosen to achieve the greatest possible depth of the implementation experience across hierarchical levels.

5.3 Sampling Strategy

To obtain the maximum variation (Patton, 2002) of roles and hierarchical levels of the participants involved in the implementation of the e-Office, the study used purposive sampling. Participants were carefully chosen to cover the entire functional scope of roles with a project architect and implementation officers at the top, IT-graduate trainers, technical support officers, district-level user-officers, secretariat-level trainers, and field-level staff at the bottom, and the entire vertical spectrum of the organisational hierarchy – from the senior IPS officer who designed the implementation architecture to entry-level field officers who had experienced the system as end-users. This diversity was intentional to heighten the analytic nature of the data; patterns that repeatedly appeared in participants who had very different perspectives have more theoretical significance than patterns that appeared in a homogeneous group of participants (Patton, 2002). In line with Grounded Theory methodology, subsequent interviews were also determined by theoretical sampling, choosing participants to further develop and clarify categories that arose in earlier interviews, until theoretical saturation was achieved, at which point 13 interviews had been conducted (Strauss & Corbin, 1990). The fifth level of data collection is Semi-structured interviews. The main data collection method was the semi-structured interviewing method. An interview guide was created, which included open-ended questions in five thematic areas: (i) roles and responsibilities within the e-Office project; (ii) factors that have led to the success of implementation; (iii) challenges in implementing change, and how they have been addressed; (iv) engaging stakeholders and inter-agency dynamics; and (v) feedback and post-implementation evaluation. The researcher used probing questions to elicit further elaboration than the researcher wanted to hear. Each participant consented to be audio recorded, and the interview was transcribed verbatim and is transcribed with no edits for analysis.

5.5 Participants Profile

The anonymised participant's profile is provided in Table 2. All participants are anonymised in line with the principles of research ethics, which safeguard the confidentiality of the participants and use role-descriptors.

Table 2: Anonymised Details about the participants in the study who were interviewed

Participant / Code	Role & Contribution to e-Office Project
P1 — Senior IPS Officer (Project Architect)	SP – Office Automation; principal architect; responsible for strategic design, phased rollout, MPF procurement and training ecosystem (2018–2020)
P2 — Senior Gazetted Officer (Second Phase Lead)	SP – Office Automation & Computerisation (2021–22); led monitoring, performance-ranking, ESR software and COVID-era continuity
P3 — Middle-Level Implementation Officer	Implementation officer; conducted district infrastructure surveys; coordinated pilot roll-outs at city and zone levels
P4 — Technical Support Officer	Technical Assistant; managed TNSWAN connectivity, technical training delivery, and district troubleshooting
P5 — Senior District-Level User Officer	District-level officer and end-user; provided transparency, accountability and adoption perspectives
P6 — Mid-Level Implementation Team Member	Implementation team member; scanner deployment, server challenges and generational adaptation
P7 — Entry-Level Field Officer	Field officer; articulated ground-level training anxieties, network constraints and operational benefits
P8 — Assistant-Level IT-Background Officer (Trainer)	Ministerial cadre officer with an IT background; became a trainer; insights on file process, automation fears and training delivery
P9 — Senior Supervisory Officer (End-User, HQ Branch)	Senior HQ branch head; 40-year service perspective; transition from manual typewriters to e-Office; end-user experience
P10 — District-Level Nodal Officer (Pilot District)	Nodal officer in a pilot district (Tirunelveli); work-from-anywhere adoption; 100% Tapal compliance
P11 — Assistant Commandant (MIS/ERP Perspective)	Technical officer with TCS background; detailed file process, ERP/MIS reporting, PDF compression, and infrastructure issues
P12 — Secretariat Training Officer	Police department officer who trained 3,645 Secretariat staff on e-Office; mindset preparation, version transitions
P13 — IT-Graduate Trainer and Video Developer	Engineering graduate-turned-trainer; developed 15+ YouTube training videos; trained districts, including Collectorate staff

5.6 Data Analysis: Grounded Theory Coding

This data analysis was done following the three-stage coding process as prescribed by Straussian Grounded Theory. The transcripts were read line by line and discrete units of meaning conceptually coded (e.g., 'fear of transparency', 'top-down mandate', 'WhatsApp support group', 'automation fear', 'IT-graduate bridge', 'PDF compression challenge', 'work from anywhere', and 'mindset preparation'). Axial Coding technique was used in the process of open coding, which was structured into higher-order categories based on their properties and causal relationships, utilising the paradigm model. The main category was found: Structured compulsion, distributed enablement, and competitive motivation occur all at once in Selective

Coding. The iterative process of data collection and analysis was continued until there was theoretical saturation.

6. Results

In this study, 13 semi-structured interviews were held with officials from all levels of the implementation chain of the TNPD e-Office project. The Grounded Theory analysis results in 6 substantive thematic categories.

6.1 Implementation Architecture and the Top-Down Mandate (RQ2, RQ3)

The e-Office roll-out was planned as a deliberate, planned, top-down cascade with a phase-by-phase method starting at the top of the organisational hierarchy and systematically cascading to the bottom over six to seven phases. All the participants mentioned this architecture as the most influential factor in success. The project was officially inaugurated on 24th August, 2018, at the Chennai office of DGP, where all incoming Physical post (tapals) were immediately scanned and distributed only via e-Office. P1, the leader of the senior project architect team, explained the rationale behind the founding: We had to make a bold decision that the DGP office should be first introduced on e-Office and then be introduced from the centre to the periphery. Initially, Madurai City, Trichy City, Salem City and seven districts were made part of the first phase, and further phases included more districts. The senior headquarters branch head, P9, echoed this phased approach from the end user's point of view – the first branch rolled out, and the remaining 14 followed in six months. The use of the system was a pilot in the district and ultimately made it possible for the district nodal officer (P10) to handle 50-100 files daily, irrespective of geographical location, instead of the constables having to travel to the DGP's headquarters at Chennai from different districts in Tamil Nadu, as the file movement was done manually earlier. COVID-19 helped speed up the adoption: With the outbreak of the pandemic in March 2020, P9 said that 90% of the HQ work was already on e-Office, which helps keep the lockdown under control. P1 concurred that 'the pandemic made e-Office not one of the good things to have, it was the only thing we had'. This cascade was accompanied by a critical reinforcement mechanism – the 'firewall' approach. The physical "tapals" were returned unopened to the named SP with the same physical addressing that was used to send them. Ministerial officer P8, who has an IT background, explained the reasons behind the issuance of the circular by the DGP office: Tapals will be accepted only in E-receipts from now on. Within a few days, 500 daily receipts had gone 100% on e-receipts in the DGP headquarters. It was structurally impossible to regress, as it was a single-channel enforcement.

6.2 Nature and Sources of Resistance (RQ1, RQ4)

Specifically, six interviews corroborated and expanded upon the distinction of resistance in three structurally different profiles.

6.2.1 Competence-Based Resistance

The ministerial cadre showed the highest level of visible opposition, which was mainly due to anxiety about digital literacy, and not necessarily to opposition to the ideology. This was confirmed by all 13 participants. P8 (IT-background ministerial officer) commented that also in 2019 there was a major part of the staff (about 50%) that were digitally illiterate, and that it was as much as the training as it was the psychological myth of 'computers are always difficult' that had to be overcome. The first hurdle of PDF file compression was something that was

seemingly a no-brainer, but really was quite intimidating for pre-digital staff: scanning documents within the 50 MB upload limit. P13 (IT-graduate trainer) explained the experience of training 40-year-old officers to learn typing, file handling, etc., and how the younger ones had to compete with the older ones and had to be patient and given one-on-one attention. They used to run away from the 'e-Office team', but now people come to us and ask their doubts.

6.2.2 Transparency-Aversion Resistance

A more important manifestation of resistance was the transparency of the accountability of the system. P8 gave a particularly detailed account: in the physical file system, a note made by a ministerial officer could be easily changed by a supervisor without anyone knowing. In e-Office, the assistant's original note, the corrections by the supervisor and all future changes are kept as a permanent record. This visibility was essentially a re-distribution of accountability — and informal power. P5 affirmed that officers who historically used informal tactics such as strategic delay and lack of transparency in the process discovered that accountability was now unavoidable. P8 also observed a positive correlation: “The transparency also meant that lower-level officers were not held accountable for the decisions made by the officers above them.” If a file was removed from the assistant's desk, the supervisor took responsibility for it. This role of accountability-as-protection proved an unexpected bonus, and over time, this resistance faded in importance.

6.2.3 Dual-System Resistance

P8, P9 and P10 confirmed the problem of having parallel paper trails to e-Office ('dual-system problem'). P8 said it was the first reality in the DGP headquarters: both paper and electronic systems were operating concurrently until the firewall circular was implemented, which required that all filings be electronic. P1 recognised this as a common problem with implementing IT, and the specific solution was to use the single-channel firewall enforcement.

6.2.4 Automation Fear: A Fourth Resistance Profile

P8 reported that senior officers are worried about losing their jobs to automation, as their decades of experience would be replaced. This concern was allayed by the trainers, who explained that e-Office was not an attempt to replace the role of the officer, but a digital version of carrying out the same role: ‘We told them that – you will be doing what you used to do but in a digital way.’ P13 reported concerns that some staff were worried about loss or corruption of digital records, and that these were not adequately demonstrated, which needed to be made clear through explicit examples.

6.3 The IT-Graduate Bridge: Trainer as Change Agent (RQ5)

Perhaps the most interesting discovery from the larger set of interviews is the importance of a type of officer, the IT-educated, mission-driven trainer, who serves as the operational link between the strategic directive at the top and the adoption at the bottom.

6.3.1 Master-Trainer

This master-trainer, network of trainer's category is a new and theoretically relevant discovery which can be included in the master-trainer-network category, brought out by P13 (IT-graduate trainer and the video developer) and P8 (the IT background ministerial officer

turned trainer). P13 (an Electronics and Communication Engineer graduate and a member of the force, who joined the force as a TNPSC Group 2A officer). They explained the role played by the senior officers in positioning the e-Office project as a 'tree to be nurtured carefully' and how engineering graduates from the force have been selected to create a dedicated trainer cadre for the post. The initial training provided to these trainers was 3 days, after which they were sent to wings, branches, districts and finally to Collectorate offices. Their responsibility was not just teaching them about the technical aspects of the game, but also about changing their thinking, giving them real-world, demo-based instruction instead of lecture-based. I didn't think of it as a job, I thought of it as a beginning of change, of modernisation of the police department, that's what I wanted to do, said the P13. The team produced more than 20 training videos, 15 of which were uploaded and linked from P13's e-Office home page and dashboard. The voiceover was boldly done by XXX Sir, and the recording and video editing were done from the back end by P13. The team met in small offices with flexible working hours and at the departmental expense in district offices. P8 talked about a parallel experience: an IT company trainer who had previously worked in an IT company, who also took that corporate mindset of 'IT project managed step by step' to the implementation of the system by the police, suggesting changes in the system via NIC. Another aspect of this bridging function was outlined by P12, the Secretariat training officer, who was a police officer who trained 3,645 Secretariat employees for a year. The themes highlighted in her account are motivational aspects of training - how YYY sir made e-Office as 'no different from using a mobile phone', the two-day training mix of theory and practice, 24/7 commitment to the learners, and the use of analogies from real-life digital experience (ATM, GPay, Netbanking etc.,) to address anxiety among the learners. Version changes — such as moving from e-Office 5.0 to 7.0 — were also included as a key "re-training" event, which involved a full cycle of new training, she said.

6.4 Training as the Central Change Mechanism (RQ5)

In addition to the multi-modal training ecosystem identified, all 13 participants reported that training in any form was essential to adoption.

6.4.1. The Local Training Officer Network

The hierarchical master trainer structure where the SP was at the top, Zonal SIs were at the second level, and the trainers at the district level were in the field was agreed upon by P2, P8, P12 and P13. P2 said the structure will be: 'In each District Police office, there will be someone to guide, who will be monitored by the zonal SIs; and the overall monitoring will be by the headquarters team. P9 acknowledged that the technical staff in the HQ were physically close to the officers to set any misconceptions straight via the intercom. P10 reported that there were nodal persons in the State for continuous coordination.

6.4.2 Tamil-Language YouTube Training Videos

The most common training innovation mentioned is a dedicated YouTube channel with short, atomic Tamil language training videos (confirmed by P1, P2, P8, P9, P12 and P13). Producing more than 20 topic-specific videos, of which 15 were inserted into the e-Office home page and drive link, was described by P13. P8 agreed that the videos reached broadly and raised doubts, which were addressed directly by trainers. Practical questions only became apparent when officers started to work physically at the computer, P9 said, pointing to the YouTube videos which gave a 'fair idea'.

6.4.3 District-Level WhatsApp Support Groups

All participants agreed on the WhatsApp group structure by district with ministerial staff and mentors at the SI-level. P12 said they received calls and SMS at 6 pm and later, and the training team agreed that it would be available 24/7. P10 reported an emergency protocol: 'In an emergency, staff put the file number on WhatsApp and files are cleared'. P13 said once the COVID-19 period hit. They used to have one officer on turn duty and send incoming tapals to the entire team on WhatsApp, so they can work from home.

6.4.4 Role-Differentiated and Age-Sensitive Training

Preparation for role differentiated training and age sensitivity training was crucial to the success, and not one-size-fits-all training. P2, P8 and P12 all spoke of deliberate role-segmentation of training content – the “assistant “(a level/designation) in the administrative structure being responsible for only initiating and forwarding files, while officers were responsible for only approving files for which they needed to review and sign off. P13 pointed out that younger officers were self-learning motivated (smartphone literate and competitive), whereas older officers needed to be instructed with patience and practice. P12 used the mobile phone analogy to reduce anxiety. P11 made the point that staff who only realised their doubts at the computer would find the weekly training sessions and the opportunity to ask questions in the session very useful.

6.5 Stakeholder Ecosystem and Resource Mobilisation (RQ1, RQ2)

The stakeholder ecosystem was confirmed and enriched by most of the interviews. The initial trainer training took place at ELCOT and was then held in the ADGP room, P8 explained, adding that ELCOT's job wasn't just to provide equipment, but also to prepare the initial infrastructure. P9 thanked P1 (the senior project architect) in particular, for the procurement of high-speed scanners and computers in all 14 HQ branches and middle-level officers in all sections. P11, who has a background in the IT sector, said the NIC e-Office suite was a 'universal template' which was not created specifically for Police use, which is an important disclaimer, as it shows how the platform's MS Word-like features differ from those required in Police drafting. P12 said that NIC developed two versions – 5.0 and 7.0 – respectively, with the growth of the upload limit from 20 MB to 50 MB, based on user feedback. P10 announced the ELCOT and TNEGA procurement positions and outlined the network speed problem in Thiruvallur, which was solved by the fibre-to-fibre-optic upgrade, which now allows for faster adoption of fibre to the home.

6.6 Institutional Reinforcement and Sustainability (RQ2, RQ3)

The interviews confirmed the mechanisms found in the analysis, such as the firewall system, performance ranking, version management, and downstream embedding, that are necessary for sustainability. P8 explained the immediate effect of the Firewall circular. P2 observed that the competition process resulted in “competitive motivation” (officers began contacting Headquarters asking why they were second). Version upgrade from e-Office 5.0 to 7.0 was a full re-training event, P12 said, noting that version management is not a one-off technical event, but an ongoing change management process. The MIS reporting features, such as generating file pendency reports, summary reports, dashboard views and 24/7 access, led to institutional incentives for the continued use of MIS, P11 added. P13 reported how the

perception of the training team evolved with time: Felt fear at first ('e-Office team has come!'), later welcomed ('e-Office team has arrived').

7. Findings and Discussion

The results are interpreted using the extended TOE theoretical framework and the six research questions, including feedback from all 13 interviews.

7.1 RQ1: Key Implementation Challenges — A Cross-Cutting TOE Analysis

The challenges were spread out across the three TOE contexts. There were also several infrastructure issues, including the lack of sufficient computers, scanners and network connectivity in 39 districts before procurement of MPF, and the complexity of the systems, such as PDF file size limits, TNSWAN bandwidth issues, and the initial incompatibility between NIC's universal template and the Police department's specific requirements for drafting, especially table formatting (as noted by P11). In the Organisation Context: the digital literacy gap amongst the pre-2000 ministerial cadre, the automation fear profile as presented by P8, the dual system resistance, the transparency-aversion resistance, and the problem of the motivation of an organisation where its identity was tied to mastery of physical files. The lack of an ICT budget (MPF flexibility, as demonstrated by P10, P11, P12) and server downtime and speed degradation under peak load (P10, P11, P12) were the most consistently reported negative feedback across the 13 interviews, as was coordinating the ecosystem (NIC, ELCOT, TNEGA, TNSWAN) with the differing institutional timelines (P10, P11). The problems of infrastructure limitations and lack of digital literacy are cited in the TOE Technology and Organisation Context, as in both studies by Mahlangu et al. (2021) and Alfiani et al. (2024). Of particular interest is the fact that server performance has remained the main concern for P12, P10 and P11 over the past six years, indicating the Environment Context challenge of infrastructure reliability has not been completely addressed.

7.2 Critical Success Factors

The critical success factors are focused on the Organisation Context. Universal was the identification of top-management support, which was operationalised through specific and visible actions by the DGP (his own personal first-mover adoption), by SP-Automation (field visits), the ADG's MPF proposal, and P13's district travel. The department had a manpower of 1.25 lakh personnel who needed quick and precise communication, so the senior officers were 'very, very adoptive, keen and eager to implement this project', P9 said. P1's account of the bold move to make the DGP office the first to go live, confirmed from the end-user point of view by P9 (head of the first HQ branch to go live) and P8 (on the circular that removed the physical tapal receipt). One of the main findings in the expanded interviews is that the IT-graduate trainer cadre is a key success factor that has not been referred to or highlighted in the literature in sufficient detail. The mandate was mediated by these trainers: P13 refer to those who were selected due to engineering qualifications and as a matter of voluntary interest. They were indispensable as mission-driven change agents who were ready to travel, patient and creative with the 40-year-olds, and who had to learn how to create multimedia information in their own working language. The case study on Maharashtra e-Office does not mention a similar structured cadre of trainers, which is a unique innovation of TNPd (Government of Maharashtra, 2013, 2023). COVID-19 as a crisis catalyst (Rogers, 2003) was confirmed by P9 (where 90% completion before COVID allowed the lockdown to be managed), P8 (who mentioned the benefits of leave management during COVID) and P10 (who mentioned the

work-from-anywhere advantage for field officers handling 50-100 files a day). As the virus killed the dual-system option for lagging units, the moment arrived for diffusion, as Rogers describes it: the critical-mass adoption moment.

7.3 RQ3.Hierarchical structure and Adoption strategy

The challenge and solution were the rank pyramid that the TNPd followed — DGP, ADGP, IGP, DIG, SP, DSP, Inspector, SI, ASI and Constable. The digital deference for the ranking (TOE novel sub-dimension 2) implied that when the DGP's office began the digital revolution and required communications only in digital form, compliance trickled down. This is a typical scenario as described by P9 for the phased rollout of the HQ branch, where the first branch was live, and the next 14 branches were implemented within six months. P10's description of its 100% tapal compliance in Tirunelveli, with its nodal officers acting across the district, suggests that it operates at the 'periphery'. A deliberate attempt was made to have a cadre of trainers that was reflective of the hierarchy, engineering graduate constabulary level trainers supporting SI level mentors, supervised by a cadre of Zonal SIs and coordinated by the Chief Office SP team. This synchronisation between the training structure and the organisational structure minimised culture shock to receiving training across rank levels, with trainers being "embedded" in the proper organisational layer, rather than being parachuted from above. Both Sahu (2013) and Laufs and Borrión (2022) found that mirroring training structures with organisational hierarchies is a best practice in the adoption of IT in the Police force, and the TNPd is doing this very well.

7.4 RQ4: Cultural Factors in the Indian Context

Interviews have been extended in particular, offering substantial evidence of the cultural aspect of adoption. All four resistance profiles are culturally shaped: competence-based, transparency aversion, dual system, and automation fear. The automation fear (job displacement anxiety) is one of the well-known results of the research on technology adoption (Davis et al., 1989) but has a specific intensity in the public-sector context in India where government employment has a unique social status and job security is one of the biggest factors influencing the decision to join (P11 said that 'Job security was one of the reasons for joining TNPSC after engineering'). Reframing e-Office as 'the same work done differently, not replacement of the worker' is a culturally sensitive answer to this particular fear, formulated by P8. The resistance to transparency is especially noteworthy in India. Kumar, Sachan and Mukherjee (2017) recognise the existence of two Indian specific sub-dimensions, namely 'corruption avoidance' and 'fear of accountability', that are not represented in the literature of e-Government in Western countries. This note-file transparency mechanism is wholly visible, and accountability is traceable to every officer in the course of their work, as described by P8, which also represents the sub-dimension of transparency-accountability culture shock that was suggested in this study. Similarly, P8's insight on how transparency can shield lower-level officers is a subtle discovery that implies that the protection of transparency to lower-level officers fades with time as the accountability effects become felt at the individual level. The P12 motivational approach is a culturally advanced attempt to motivate adoption in the collectivistic, high power distance context, by comparing Dubai, the Arabian countries and their full e-Office systems, competitive framing ('we should not be like an exhibition'), and analogies of digital life using smart phones, which all focus on collective and national pride rather than individual benefit. This is in line with Hofstede's (1980) description of India as high on collectivism, where the motivation is more group than individual reference.

7.5 RQ5: Effectiveness of Capacity-Building and Training

Training came into focus in the expanded interview set, as all 13 participants mentioned it, and four of them were primarily identified as trainers or training coordinators (P8, P12, P13, and P2 in her second phase role). The multi-modal system, from the master trainer hierarchy to the Tamil language, the home-based learning platform, the minimalist competence targeting, the age-appropriate support, and the real-time doubt resolution via WhatsApp proved effective just because of the fact that it addressed multiple distinct barriers at once. The contribution of the IT-graduate trainers' cadre to the effectiveness is important. In their TAM-TOE study of technology adoption in India, Gangwar, Date and Ramaswamy (2015) group the sub-dimension 'training and support' into one organisational sub-dimension. The source, motivation and identity of trainers are as important as the content or modality of training, as illustrated by the TNPD case. The 'College Professor mind-set' that he said had been developed as a trainer, coupled with P13's pride of completing their first e-Office file at 40, indicate that intrinsic motivation in the trainer cadre was one of the most crucial factors in making training effective – and it was not just an infrastructure variable. In P12's version transition re-training story, it seems that software upgrades are full change management events. The upgrade from e-Office 5.0 to 7.0 – featuring huge file size enhancements and a new set of interface elements – demanded a brand-new round of video creation for YouTube, messaging for WhatsApp and an overhaul of the classroom with refreshers. In organisations where version upgrades are considered simply technical, there is a risk of losing the momentum of the uptake that has been gained through the initial training cycle.

7.6 RQ6: Transferable Lessons

The TNPD model is a validated blueprint for public-sector digital transformation in hierarchical, high power-distance contexts in developing countries. Its transferability is based on the consistency of three dynamics: structuring compulsion (firewall + single channel mandate), distributing enablement (multi-modal training ecosystem), and competitive motivation (performance ranking + rewards). None of them was enough by itself; the deciding factor was that they were to operate together. A model with a transferable model of the IT-graduate bridge is particularly transferable. In any organisation where there is a cadre of technically educated junior officers, the formation of a cadre of motivated trainers is possible by identifying the IT background officers, giving them a structured training and enabling them to train across the hierarchy. Trainers need to be resourced for their mission (travel, accommodation, flexible timings) and the mission expressed as institutional change, not routine duty, as confirmed by both P13's experience in district travel and P12's Secretariat deployment. The TNPD model offers actionable detail for every level for peer organisations, such as Karnataka Police, Kerala Police (which is fully implementing e-Office 7.0), CRPF, CISF and similar Police forces: infrastructure sequencing (TPF procurement before mandate activation), training architecture (master trainer vs rank structure), motivational programme (ranking in Phase 1 as an incentive), and sustainability protocol (version upgrades as re-training events).

7.7 Integrated Theoretical Proposition: The TNPD-TOE Model

The TNPD-TOE Model is a theoretical proposition that has been integrated into the TNPD. The study summarises the six research question analyses and proposes a central theoretical proposition that the success of the TNPD e-Office implementation was the result of the simultaneous activation of the three pillars: structured compulsion (Environment Context:

regulatory mandate + firewall), distributed enablement (Organisation Context: IT-graduate trainer cadre, multi-modal training, MPF infrastructure), and competitive motivation (Organisation Context: performance ranking, intrinsic trainer pride). Each pillar alone was not enough; it was their interaction that was needed. This proposition is an extension of the TOE model in three aspects. Firstly, it points to a sequencing interaction effect between Environmental Context (mandate) and Organisational Context (training infrastructure). They need to be provided in sequence for them to be realised, but in such a way that the infrastructure comes before the mandate to make it possible, but not too soon for the mandate to create an urgency. Secondly, it introduces IT-graduate trainers as a new organisational sub dimension, which is ‘bridge human capital’, which has never been theorised in TOE literature. Thirdly, it introduces three sub-dimensions to the TOE framework that add to its applicability for Indian hierarchical organisations in the public sector (colonial-bureaucratic legacy compatibility, rank-based digital deference, and transparency-accountability culture shock).

8. Practical Implications

The results provide seven recommendations for digital transformation in the public sector within a hierarchical organisation:

1. Leadership should be in action. Rhetorical endorsements were not the same as DGP's personal “first mover” adoption, district field visits by SP-Automation, and the ADG's MPF advocacy. Technical teams are not the only ones responsible for change management.
2. Infrastructure must precede mandate activation. MPF procurement of 2,302 computers, 123 scanners, and connectivity provision was completed before enforcement. The sequencing is critical: compulsion without capability produces demoralising failure.
3. Establishing an IT-graduate cadre of bridge: Creating a cadre of technically trained officers, developing them as mission-oriented change agents, and allowing them to teach inter-rank is the human infrastructure needed to turn mandate into competence. This cadre should be resourced (stay, travel, etc.) and motivated by institutional mission, not routine duty.
4. Training should be role-specialised, place-based and adequately resourced on an ongoing basis. Low-cost, high-impact interventions are provided in regional languages, through role-segmented protocols, 24/7 WhatsApp support, and age-sensitive instruction. Training capacity needs to be recognised as an integral and ongoing activity rather than a project phase expense.
5. Introducing performance visibility and competitive motivation from Phase 1. Like-for-like district rankings backed by prompt DGP-sanctioned rewards harness the status-consciousness of hierarchical cultures as a motivational resource.
6. Considering version upgrades as complete change management events. A significant software update is made up of the same structure as the initial rollout. Implementing the same protocols that have been adopted for YouTube, WhatsApp, and classroom – otherwise there are risks of losing hard-won gains in adoption.
7. Adopting contextualisation of frameworks for the Indian public-sector Police Department. Integrating the three novel TOE sub-dimensions – colonial-bureaucratic legacy compatibility, rank-based digital deference and transparency-accountability culture shock – into the planning frameworks of NIC, MeitY, TNEGA and State e-governance agencies.

9. Conclusion

The implementation of the e-Office system at the Tamil Nadu Police Department is a pioneering initiative in the field of change management in the public sector in India. Grounded Theory analysis of 13 semi-structured interviews with officers from the top of the chain of command, including the IPS officer who designed the system, to the engineering graduate who created the training videos for the system on YouTube, has resulted in a model that can be replicated when managing digital transformation in hierarchical, traditionally paper-based organisations. The main theoretical principle is structural: for enduring change to occur, it is necessary to eliminate the easy path to legacy practice (structured compulsion), invest in the capacity to operate in the new system (distributed enablement), and make compliance a competitive pride (competitive motivation). It is particularly commendable that the TNPD has a firewall system, a Tamil language YouTube training channel, WhatsApp district support groups, an IT-graduate trainers' cadre, a performance ranking mechanism and creative use of MPF funding and ELCOT partnerships. They are part of a coherent change management architecture when combined. The study's most innovative empirical finding is the identification of a cadre of IT-graduates who, as mission-oriented, technically savvy junior officers, were the operational nexus between strategic mandate and operational implementation. Their training and content development, and their mindset-changing role are a human capital innovation that is neither theoretically understood in the TOE and e-Governance literature, nor is it difficult to replicate in any organisation with technically educated young staff. The model presented here for the adoption of e-Governance (TNPD-TOE) extends the standard framework with the addition of three India-specific sub-dimensions and provides a context-sensitive theoretical contribution to a broader stream of research on e-Governance adoption in hierarchical settings with high power distance in developing countries. These sub-dimensions should be tested quantitatively in a larger sample of Police departments in India and similar hierarchical public sector organisations, and future studies should determine the impact of the IT-graduate bridge model on other hierarchical public sector organisations. One of the IT-trained trainers said: Earlier, people used to run away on seeing us, but now they are coming with their queries to us'. What the TNPD achieved is best captured in transforming avoidance to enthusiasm, and threat to resource.

Declaration regarding the use of AI in the research

The approach used human–AI collaboration, with the aid of AI for qualitative analysis. The qualitative analysis of interview data was initially coded and organised by Claude (Anthropic, claude.ai). The tool helped in delimiting possible conceptual patterns, in the production of tentative codes and in structuring the thematic relationships which were being developed from the 13 interview transcripts. The researcher made all analytical decisions, such as the meaning interpretation, theoretical framing, category refinement and theoretical saturation. The AI tool was used as an analytical tool in a computer-assisted qualitative data analysis process, and was not used to draw conclusions or come to findings on its own. All products created by AI were critically reviewed, validated, changed or rejected by the researcher before they were used in the study. (Morgan 2023; Hutch 2024; Marshall & Naff 2024)

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