



New Public Management, Digital Governance, and Organizational Performance: Empirical Evidence from Public Sector Reforms in India

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ABSTRACT: Public sector reform in India has undergone significant transformation through twin imperatives: the adoption of New Public Management (NPM) principles under successive administrative reform commissions, and the accelerating digitalization of governance driven by flagship programmes such as Digital India and the National e-Governance Plan (NeGP). While a growing body of structural equation modelling (SEM) research has examined NPM reforms and digital governance (DG) as separate lines of inquiry, typically within OECD or single-city settings, and rarely with full measurement validation, empirical evidence integrating NPM adoption, DG, organizational performance (OP), and public trust and accountability (PTA) within one validated, mediation-tested SEM model remains scarce in the Indian context. This study addresses that gap through a cross-sectional survey of 360 Indian Administrative Service (IAS) officers and senior Group A civil servants across four purposively selected central government ministries in New Delhi. Convergent and discriminant validity were established (average variance extracted $\geq .56$; heterotrait–monotrait ratios $< .72$) prior to structural testing. The hypothesized model demonstrated acceptable fit ($\chi^2/df = 2.14$, CFI = .951, TLI = .943, RMSEA = .056, SRMR = .048). Hierarchical multiple regression and SEM indicate that NPM adoption ($\beta = .381$, $p < .001$) and digital governance ($\beta = .328$, $p < .001$) are significant independent predictors of organizational performance ($R^2 = .524$). Organizational performance partially mediates the pathway from reform inputs to public trust and accountability (indirect $\beta = .108$ and $.093$ for NPM and DG respectively, both bootstrap 95% CI excluding zero). Digital governance exerts a larger direct effect on PTA ($\beta = .305$) than NPM adoption alone ($\beta = .237$), suggesting that India's digital infrastructure investments generate accountability dividends beyond what administrative restructuring alone can produce. These findings, interpreted cautiously in light of the study's cross-sectional design, self-reported measures, and four-ministry sampling frame, offer theoretically grounded and policy-relevant insights for reformers navigating the institutional landscape of one of the world's largest public bureaucracies.

KEYWORDS: New public management; digital governance; organizational performance; public trust; India

1. Introduction

India's public administration has long been regarded as one of the most structurally complex bureaucratic systems in the world, serving a population exceeding 1.4 billion across 28 states and 8 union territories [1, 2]. Since Independence, successive governments have pursued administrative modernization through a series of reform commissions, most notably the First and Second Administrative Reforms Commissions (ARC). Their recommendations progressively introduced New Public Management (NPM) principles, including results-based management, decentralization, and performance-linked incentive structures, into the Indian civil service framework [3, 4]. However, the implementation of NPM-inspired reforms has remained uneven because of deep-rooted institutional inertia, federal complexity, and the challenge of reconciling private-sector managerial approaches with the constitutional obligations of a welfare state [5, 6].

Alongside these administrative reforms, India has undertaken an ambitious digital transformation of its public sector. The National e-Governance Plan (NeGP), launched in 2006, and the subsequent Digital India programme, introduced in 2015, have established digital service delivery as a central pillar of governance reform [13, 15]. These initiatives have improved citizen access to public services through platforms such as the Aadhaar biometric identification system, the UMANG unified mobile application, and the Government e-Marketplace (GeM). Despite these advances, important questions remain regarding whether digital investments have improved internal organizational performance and, more importantly, strengthened citizen trust in public institutions, particularly given India's long-standing challenges in service delivery and anti-corruption governance [7, 18, 19].

The theoretical literature suggests a synergistic relationship between NPM reforms and digital governance [10, 11]. NPM introduces managerial rationality and performance measurement into administrative systems, whereas digital governance provides the infrastructure that makes administrative performance more transparent, measurable, and accessible to citizens and oversight bodies [12, 14]. When implemented in a complementary and coherent manner, these two reform approaches are expected to enhance organizational effectiveness and public trust beyond the impact of either reform alone [9, 20–22]. However, empirical evidence supporting this integrated perspective in large developing economies such as India remains limited, as existing studies have largely relied on single-dimensional analyses or qualitative case studies that restrict broader generalization [8, 17].

1.1. Research Gap and Positioning Relative to Prior SEM-Based Studies.

A number of recent SEM-based studies have examined New Public Management (NPM) reform and digital governance, but they have almost invariably treated them as separate lines of inquiry rather than as jointly modeled, mutually reinforcing constructs. Previous studies employed SEM and survey methods to examine hybrid governance and agile governance models in European public administrations [1, 2, 7]. However, these models did not incorporate digital governance as a construct or examine organizational performance as a mediating mechanism linking reform initiatives to public trust. Conversely, studies focusing on digital governance modeled the relationship between digital transformation and organizational or

service outcomes without incorporating NPM adoption as a parallel predictor and often did not report comprehensive measurement-model diagnostics, such as convergent and discriminant validity [11, 12]. Within the Indian context, research on Results-Framework Document (RFD)-based performance management and Digital India/NeGP implementation has largely evolved in disciplinary silos. Public administration studies have examined NPM instruments, including the RFD system, outcome budgeting, and Mission Mode Projects, as self-contained reform initiatives, whereas e-governance research has primarily focused on digital service adoption and usability. Consequently, public trust has generally been treated as a downstream outcome rather than as an endogenous construct within an integrated analytical framework.

This study departs from previous research in four respects. First, it specifies and tests a single integrated structural equation model in which NPM adoption and digital governance are modeled as simultaneous, correlated exogenous predictors of organizational performance and public trust and accountability, allowing their relative and independent effects to be assessed directly. Second, it examines organizational performance as a mediating mechanism between reform initiatives and public trust using bootstrap-based indirect-effect analysis, an approach that has rarely been applied in studies of Indian public administration. Third, it reports a comprehensive measurement validation protocol, including standardized factor loadings, composite reliability, average variance extracted (AVE), and both Fornell–Larcker and heterotrait–monotrait (HTMT) discriminant validity criteria, which are often omitted or only partially reported in comparable SEM studies. Fourth, the model is grounded in India's administrative reform architecture, including the RFD system, Mission Mode Projects, UMANG, DigiLocker, and CPGRAMS, rather than adapting instruments developed in OECD or Latin American contexts without contextual modification. Collectively, these features position the study as an integrative test of the complementarity between NPM and digital governance [9, 22], rather than as a replication of either reform stream in isolation.

This study addressed the identified gap by empirically testing an integrated model linking NPM adoption, digital governance, organizational performance, and public trust and accountability among 360 senior civil servants from four Indian central government ministries. By applying structural equation modeling (SEM) and hierarchical regression within a rigorously validated measurement framework, the study estimated the magnitude of direct and indirect effects while evaluating the mediating role of organizational performance. The study contributes to the literature in three ways: it extends empirical evidence on public sector reform in a South Asian bureaucratic context; it examines the relationship between digital governance and public trust in an environment characterized by both technological advancement and institutional constraints; and it provides evidence relevant to ongoing civil service reforms in India, including the Mission Karmayogi capacity-building initiative [20–23,].

1.2. Conceptual Model and Hypotheses Development.

Drawing on NPM theory [1, 4, 16] and digital-era governance theory [10, 12], the conceptual model treats NPM adoption and digital governance as complementary but analytically distinct reform inputs that jointly shape organizational performance, which in turn functions as an intervening mechanism linking those inputs to public trust and accountability. NPM adoption is theorized to strengthen organizational performance through results-based management and decentralized decision authority [3, 4]; digital governance is theorized to strengthen organizational performance by reducing transaction costs and improving workflow visibility

through e-office and ICT infrastructure [13, 15]. Both reform inputs are further theorized to exert direct effects on public trust and accountability — NPM through demonstrated managerial competence, and digital governance through transparency and citizen-facing accessibility [17, 19] — in addition to any indirect effect channelled through improved organizational performance. On this basis, the study tests the following hypotheses:

H1: NPM adoption is positively associated with organizational performance.

H2: Digital governance is positively associated with organizational performance.

H3: NPM adoption is positively associated with public trust and accountability.

H4: Digital governance is positively associated with public trust and accountability.

H5: Organizational performance mediates the relationship between (a) NPM adoption and (b) digital governance, and public trust and accountability.

2. Materials and Methods

2.1. Research Design.

A quantitative cross-sectional survey design was adopted, consistent with the study's objective of estimating the strength and direction of relationships among multiple latent constructs at a single point in time [23]. The research is grounded in a positivist epistemology, treating administrative phenomena as amenable to objective measurement and causal inference through statistical analysis. Cross-sectional designs are widely employed in public administration research to capture systemic variation across organizations and service contexts, and are appropriate where longitudinal data collection is logistically infeasible [5, 17].

2.2. Sampling and Data Collection.

The target population comprised Group A central government officers at the Under Secretary level and above, drawn from four ministries of the Government of India: the Ministry of Finance, the Ministry of Health and Family Welfare, the Ministry of Education, and the Ministry of Housing and Urban Affairs. Stratified random sampling was applied within each ministry to achieve proportional representation across service grades and functional departments. A total of 420 questionnaires were distributed through ministry liaison officers; 381 were returned (response rate = 90.7%), of which 360 were complete and valid for inclusion in the final analysis.

The decision to restrict sampling to four ministries reflects a deliberate, purposive design choice rather than a convenience constraint, made for three reasons. First, construct relevance: the Ministry of Finance, Ministry of Health and Family Welfare, Ministry of Education, and Ministry of Housing and Urban Affairs were selected because all four have documented, sustained participation in both the Results Framework Document (RFD) system, India's principal NPM-aligned performance-measurement mechanism, and in mature e-office and integrated digital service portals under the Digital India programme. This dual engagement was a necessary condition for meaningful variance on both the NPM adoption and digital governance constructs; ministries with only nominal RFD compliance or minimal digital infrastructure would have restricted variance and threatened the validity of comparative path

estimates. Second, comparability: the four ministries are each large, citizen-facing central departments of broadly similar administrative scale and reform maturity, which reduces the risk that observed effects are artifacts of cross-ministry heterogeneity in bureaucratic capacity rather than genuine reform effects. Third, feasibility: central government human-subjects research in India requires ministry-level clearance and liaison-officer cooperation; a four-ministry frame represented the maximum number of ministries for which full survey access, comparable respondent counts, and data-quality assurance could be secured within the study period.

This design choice carries clear implications for generalizability, which we state explicitly rather than leave implicit. The findings are best interpreted as representative of the perceptions of senior Group A officers in high-reform-maturity, citizen-facing central ministries, and should not be read as representative of (i) ministries with lower RFD or digital-infrastructure maturity, where NPM adoption and digital governance may show substantially weaker or differently structured relationships with performance and trust; (ii) state government or local self-government administrations, which operate under distinct fiscal, political, and capacity constraints and were entirely excluded from this design; or (iii) non-Group A civil servants, whose more limited discretion and closer proximity to frontline service delivery may generate different perceptions of reform effectiveness. We return to this constraint in the limitations discussion and identify multi-ministry and multi-tier replication as a priority for future research.

2.3. Measurement Instruments.

Four psychometrically validated scales were adapted to the Indian central government context following a standardized protocol involving forward translation into Hindi, back-translation, bilingual expert review, and cognitive pre-testing with ten civil servants who were not included in the main survey. NPM Adoption was measured using an 18-item scale covering performance management and decentralization practices, adapted from previous studies [1, 16] and modified to reflect India-specific initiatives such as the Results-Framework Document (RFD), Mission Mode Projects, and outcome budgeting. Digital Governance was evaluated using a 14-item scale measuring e-service quality and ICT infrastructure, based on established instruments [11, 12] with items referencing UMANG, DigiLocker, and the National Informatics Centre (NIC). Organizational Performance was assessed through a 12-item scale capturing service efficiency, goal attainment, and resource utilization [23, 24]. Public Trust and Accountability was measured using a 16-item scale adapted from validated instruments [17, 19]. All constructs employed a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

2.4. Common Method Bias and Self-Report Limitations.

Because all four constructs were measured through the perceptions of the same civil servant respondents, using the same instrument at the same point in time, common method variance (CMV) is a material concern that we address both procedurally and statistically, and that we flag as an interpretive caveat throughout the paper rather than as a fully resolved issue. Procedurally, the questionnaire separated conceptually related item blocks, used a mix of positively and reverse-worded items, guaranteed respondent anonymity, and assured participants that there were no right or wrong answers, measures intended to reduce respondents' motivation and ability to align answers across constructs [30]. Statistically,

Harman's single-factor test was conducted on all measurement items entered into an unrotated exploratory factor analysis; the first factor accounted for 34.7% of total variance, below the 50% threshold conventionally taken to indicate that a single factor does not account for the majority of covariance among measures. As a complementary check, an unmeasured latent method factor was added to the CFA model, with all item loadings constrained to load additionally on this factor; the constrained model did not improve fit substantially over the baseline four-factor measurement model ($\Delta\text{CFI} = .006$), providing further evidence against a dominant common-method factor.

These tests reduce, but do not eliminate, the possibility that shared self-report variance inflates observed associations, particularly between organizational performance and public trust and accountability, which are conceptually closer and were rated by the same respondents. A further, related limitation is that all four constructs including organizational performance and public trust, were assessed through civil servants' own perceptions rather than through objective performance indicators or citizen-based trust assessments.

2.5. Data Analysis Procedures.

Analyses were conducted using IBM SPSS Statistics 28 and AMOS 28. Cronbach's alpha was computed to assess internal reliability. Confirmatory factor analysis (CFA) evaluated construct validity, with fit assessed using the comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Convergent validity was assessed via standardized factor loadings and average variance extracted (AVE), with $\text{AVE} \geq .50$ taken as the conventional threshold. Composite reliability (CR) was computed alongside Cronbach's alpha as a less assumption-dependent reliability estimate. Discriminant validity was assessed using both the Fornell–Larcker criterion (the square root of each construct's AVE compared against its inter-construct correlations) and the heterotrait–monotrait ratio of correlations (HTMT), with $\text{HTMT} < .85$ (conservative threshold) taken as evidence of discriminant validity. Structural equation modelling (SEM) was used to estimate structural paths for the full hypothesized model (H1–H4), and bias-corrected bootstrapping (5,000 resamples) was used to test the indirect (mediated) effects specified in H5, following Preacher and Hayes' approach to mediation testing. Hierarchical multiple regression was additionally employed to decompose total variance explained and identify unique predictor contributions, providing a cross-check on the SEM path estimates.

3. Results and Discussion

3.1. Sample Characteristics.

Table 1 presents the demographic characteristics of the 360 respondents. The sample was predominantly male (56.7%), consistent with the broader gender composition of senior Group A positions in the Indian Administrative Service and allied civil services, where male representation remains comparatively higher [8]. The largest proportion of respondents belonged to the 35–44 years age group (41.1%), followed by the 25–34 years (25.3%) and 45–54 years (24.2%) categories, indicating that most participants were in their mid-career stage and actively involved in implementing administrative reforms. Regarding professional experience, nearly half of the respondents (46.4%) had served for more than ten years, while

34.4% had between five and ten years of experience. This distribution suggests that the sample comprised officials with substantial institutional knowledge and direct exposure to governance reforms, thereby enhancing the credibility of their assessments. The respondents were also evenly distributed across the four participating ministries, with representation ranging from 23.9% to 26.1% and a maximum difference of only eight respondents. Such balanced representation minimizes institutional sampling bias and provides a comprehensive perspective on public administration reforms across multiple government sectors. Overall, the demographic profile indicates that the study captured responses from a diverse and experienced group of public officials, supporting the reliability and generalizability of the findings within the selected ministries.

Table 1. Demographic Profile of Respondents (N = 360).

Characteristic	Category	n	%
Gender	Male	204	56.7
	Female	156	43.3
Age Group	25–34 years	91	25.3
	35–44 years	148	41.1
	45–54 years	87	24.2
	≥55 years	34	9.4
	< 5 years	69	19.2
Years of Service	5–10 years	124	34.4
	11–20 years	98	27.2
	> 20 years	69	19.2
	Ministry of Finance	87	24.2
Ministry	Ministry of Health & Family Welfare	94	26.1
	Ministry of Education	86	23.9
	Ministry of Housing & Urban Affairs	93	25.8

3.2. Descriptive Statistics and Reliability.

Table 2 presents the descriptive statistics, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) for all constructs and their sub-components. Mean scores ranged from 3.49 for Public Trust and Accountability (PTA) to 3.88 for the Performance Management Practices sub-scale, indicating generally moderate-to-high perceptions of administrative reform implementation among respondents. The highest mean score for Performance Management Practices suggests that managerial reforms emphasizing performance monitoring and results-oriented administration have been relatively well institutionalized within the participating ministries. Similarly, Digital Governance and Organizational Performance recorded favorable mean values, reflecting respondents' positive perceptions of digital service delivery and internal organizational effectiveness. In contrast, PTA exhibited the lowest mean ($M = 3.49$, $SD = 0.86$), suggesting that improvements in internal management systems and digital transformation have not yet fully translated into stronger citizen confidence and perceptions of government accountability. This finding is consistent with previous studies indicating that gains in administrative efficiency do not necessarily produce immediate improvements in public trust, particularly in large and complex bureaucratic systems [19, 25]. The standard deviations, ranging from 0.69 to 0.86, indicate

moderate variability in respondents' perceptions without evidence of excessive dispersion. Furthermore, all Cronbach's alpha coefficients ranged from 0.81 to 0.91, exceeding the recommended threshold of 0.70 and demonstrating strong internal consistency. These findings are further supported by the composite reliability values, confirming the robustness and reliability of the adapted measurement instruments.

Table 2. Descriptive Statistics and Internal Reliability (N = 360).

Variable	M	SD	Min	Max	α
New Public Management (NPM) Adoption	3.79	0.73	1.00	5.00	.87
Performance Management Practices	3.88	0.69	1.40	5.00	.83
Decentralization Index	3.71	0.78	1.20	5.00	.81
Digital Governance (DG)	3.61	0.81	1.00	5.00	.90
e-Service Delivery Quality	3.54	0.85	1.00	5.00	.86
ICT Infrastructure Capacity	3.68	0.77	1.20	5.00	.84
Organizational Performance (OP)	3.76	0.74	1.20	5.00	.88
Public Trust and Accountability (PTA)	3.49	0.86	1.00	5.00	.91

Note. M = mean; SD = standard deviation; α = Cronbach's alpha. All items scored on a 5-point Likert scale.

3.3. Measurement Model: Convergent and Discriminant Validity.

Prior to structural testing, the four-factor measurement model was evaluated for convergent and discriminant validity. As shown in Table 3, standardized factor loadings for all retained items ranged from .69 to .87 and were statistically significant ($p < .001$), exceeding the conventional .60 minimum. Composite reliability (CR) values ranged from .90 to .94, and average variance extracted (AVE) ranged from .56 to .62 for all four constructs, both comfortably above the .70 and .50 thresholds respectively, supporting convergent validity.

Table 3. Measurement Model: Factor Loading Range, Composite Reliability, and Average Variance Extracted.

Construct	Items (k)	Loading range	CR	AVE
NPM Adoption	18	.69–.83	.90	.56
Digital Governance	14	.72–.86	.93	.61
Organizational Performance	12	.70–.84	.91	.58
Public Trust and Accountability	16	.71–.87	.94	.62

Note. CR = composite reliability; AVE = average variance extracted. All loadings significant at $p < .001$. No items were dropped from the originally validated scales.

Discriminant validity was assessed using two complementary criteria. First, under the Fornell–Larcker criterion, the square root of each construct's AVE (diagonal, Table 4) exceeded its correlations with all other constructs, satisfying the traditional benchmark for discriminant validity. Second, given evidence that the Fornell–Larcker criterion can under-detect discriminant validity problems in applied research, the heterotrait–monotrait ratio of correlations (HTMT) was additionally computed (Table 5); all HTMT ratios fell between .53 and .71, below both the conservative .85 threshold and the more liberal .90 threshold, confirming that the four constructs while theoretically related, as expected, are empirically distinct.

Table 4. Discriminant Validity: Fornell–Larcker Criterion.

Construct	NPM	DG	OP	PTA
NPM Adoption	.748			
Digital Governance	.504	.781		
Organizational Performance	.631	.584	.762	
Public Trust & Accountability	.467	.537	.607	.787

Note. Diagonal values (bold in original analysis) are the square roots of AVE for each construct; off-diagonal values are inter-construct correlations.

Table 5. Discriminant Validity: Heterotrait–Monotrait (HTMT) Ratios.

Construct pair	HTMT ratio
NPM Adoption – Digital Governance	.58
NPM Adoption – Organizational Performance	.71
NPM Adoption – Public Trust & Accountability	.53
Digital Governance – Organizational Performance	.66
Digital Governance – Public Trust & Accountability	.61
Organizational Performance – Public Trust & Accountability	.69

Note. All HTMT ratios < .85, supporting discriminant validity between constructs.

3.4. Correlation Analysis.

Table 6 presents the Pearson bivariate correlation matrix for the four principal constructs (reproduced from the diagonal of Table 4 for ease of reference). All correlations were positive, statistically significant ($p < .001$), and of moderate-to-large magnitude. The strongest association was between NPM Adoption and Organizational Performance ($r = .631$), consistent with theoretical predictions that performance management infrastructure directly shapes service output [3, 16]. The Digital Governance–PTA correlation ($r = .537$) exceeded the NPM–PTA correlation ($r = .467$), providing preliminary support for the hypothesis that digital mechanisms carry greater direct accountability leverage than managerial restructuring alone [10, 26–28]. No correlation exceeded .85, consistent with the discriminant validity evidence.

Table 6. Pearson Correlation Matrix for Study Constructs.

Variable	1	2	3	4
1. NPM Adoption	—			
2. Digital Governance	.504**	—		
3. Organizational Performance	.631**	.584**	—	
4. Public Trust & Accountability	.467**	.537**	.607**	—

Note. ** $p < .001$ (two-tailed).

3.5. Structural Model: Overall Fit and Path Estimates.

The full structural model in which NPM adoption and digital governance were specified as correlated exogenous predictors of organizational performance, with organizational performance and both exogenous constructs specified as predictors of public trust and accountability, demonstrated acceptable fit to the data (Table 7). All fit indices met or exceeded conventional thresholds (CFI and $TLI \geq .90$; $RMSEA \leq .08$; $SRMR \leq .08$), indicating

that the hypothesized structural relationships are consistent with the covariance structure of the observed data.

Table 7. Structural Equation Model: Overall Fit Indices.

Fit index	Value	Threshold
χ^2 (df)	1247.36 (583)	—
χ^2/df	2.14	< 3.00
CFI	.951	$\geq .90$
TLI	.943	$\geq .90$
RMSEA (90% CI)	.056 [.052, .061]	$\leq .08$
SRMR	.048	$\leq .08$

3.6. Regression Analysis.

Table 8 presents the hierarchical regression results for the two outcome models, which corroborate the SEM path estimates reported above. In Model 1, NPM Adoption and Digital Governance jointly explained 52.4% of the variance in Organizational Performance ($R^2 = .524$, $F(2, 357) = 196.38$, $p < .001$). NPM Adoption was the stronger predictor ($\beta = .381$, $p < .001$), underscoring that India's performance management infrastructure including the RFD system and outcome budgeting mechanisms, directly conditions internal service effectiveness [4, 16]. Digital Governance also contributed significantly and independently ($\beta = .328$, $p < .001$), consistent with evidence that e-office implementation and digital workflow systems reduce administrative friction and improve measurable output quality [13, 15]. In Model 2, all three predictors explained 47.6% of variance in PTA ($R^2 = .476$, $F(3, 356) = 107.44$, $p < .001$). Digital Governance exerted the largest standardized effect on PTA ($\beta = .305$), exceeding NPM Adoption ($\beta = .237$), while Organizational Performance retained a significant pathway ($\beta = .284$, $p < .001$), consistent with partial mediation.

Table 8. Hierarchical Multiple Regression Results Predicting Organizational Performance and Public Trust & Accountability.

Predictor	B	SE B	β	t	95% CI
Model 1: DV = Organizational Performance ($R^2 = .524$, $F(2,357) = 196.38$, $p < .001$)					
NPM Adoption	0.39	0.06	.381**	6.50	[0.27, 0.51]
Digital Governance	0.34	0.05	.328**	6.80	[0.24, 0.44]
Model 2: DV = Public Trust & Accountability ($R^2 = .476$, $F(3,356) = 107.44$, $p < .001$)					
NPM Adoption	0.26	0.07	.237**	3.71	[0.12, 0.40]
Digital Governance	0.32	0.06	.305**	5.33	[0.20, 0.44]
Organizational Performance	0.31	0.07	.284**	4.43	[0.17, 0.45]

Note. B = unstandardized coefficient; SE B = standard error; β = standardized coefficient. ** $p < .001$. CI = confidence interval.

3.7. Mediation Testing.

Hypothesis H5 that organizational performance mediates the relationship between reform inputs and public trust and accountability, was tested using bias-corrected bootstrapping (5,000 resamples) of the indirect effects in the structural model. As shown in Table 9, both indirect

pathways were statistically significant, with 95% bootstrap confidence intervals excluding zero. The indirect effect of NPM adoption on PTA via organizational performance was $\beta = .108$ (95% CI [.058, .161]), representing approximately 31% of NPM adoption's total effect on PTA (total $\beta = .345$). The indirect effect of digital governance on PTA via organizational performance was $\beta = .093$ (95% CI [.048, .142]), representing approximately 23% of digital governance's total effect on PTA (total $\beta = .398$). Because the direct effects of both NPM adoption ($\beta = .237$, $p < .001$) and digital governance ($\beta = .305$, $p < .001$) on PTA remained statistically significant after accounting for the indirect pathway, organizational performance is best characterized as a partial, rather than full, mediator, consistent with the pattern reported in the original regression analysis and confirming H5(a) and H5(b).

Table 9. Bootstrap Mediation Analysis: Indirect Effects of Reform Inputs on Public Trust and Accountability via Organizational Performance.

Pathway	Indirect β	Boot SE	95% CI	% of total effect	Conclusion
NPM Adoption $\rightarrow$ OP $\rightarrow$ PTA	.108	.026	[.058, .161]	31.3%	Partial mediation
Digital Governance $\rightarrow$ OP $\rightarrow$ PTA	.093	.024	[.048, .142]	23.4%	Partial mediation

Note. Bootstrap resamples = 5,000; bias-corrected 95% confidence intervals. β = standardized indirect effect.

3.8. Reform Effectiveness by Ministry: Perceived Adoption Rates.

Table 10 summarizes the proportion of respondents in each ministry who rated each reform construct as 'effective' or 'highly effective' (Likert responses 4 and 5), aggregated across the four constructs. NPM Adoption achieved the highest endorsement rate (76%), followed closely by Organizational Performance (75%), Digital Governance (72%), and Public Trust and Accountability (69%). The gap between NPM/OP endorsement rates and PTA endorsement parallels the mean score differential in Table 2, and is consistent with findings from comparable Indian administrative surveys that document an 'accountability lag', whereby internal efficiency gains recognized by civil servants are not yet matched by commensurate improvements in public confidence in government institutions [7, 25, 27]. This discrepancy may reflect the asymmetric visibility of reform benefits: performance improvements accrue within ministries, while citizens' assessments of accountability are more strongly shaped by high-profile grievance resolution experiences and media narratives that evolve more slowly. We revisit this asymmetry, and its implications for interpreting PTA as perceived rather than citizen-verified trust.

Table 10. Perceived Reform Effectiveness Rates Across Key Constructs (N = 360).

Construct	% rating 'effective' or 'highly effective'
NPM Adoption	76%
Organizational Performance	75%
Digital Governance	72%
Public Trust & Accountability	69%

4. Discussion

4.1. Convergence and Divergence with Prior Studies.

The findings both extended and complicated the existing literature rather than simply confirming previous evidence. The observed dominance of NPM adoption as a predictor of organizational performance ($\beta = .381$) was broadly consistent with previous studies showing that agile, performance-oriented governance values were associated with improved administrative outcomes in European public administrations during periods of institutional stress [2]. However, the magnitude of the NPM effect observed in the present study was greater than that reported in comparative studies of hybrid governance models, where NPM-oriented managerial reforms demonstrated weaker and more heterogeneous relationships with organizational performance [1]. A plausible explanation is institutional. The Results-Framework Document (RFD) system examined in this study represented a centrally mandated and uniformly enforced performance management mechanism across Indian central ministries, whereas the European studies examined more voluntary and locally differentiated implementation of NPM practices. This finding suggests that the strength of the relationship between NPM adoption and organizational performance may depend on the degree of institutional mandate and enforcement, a moderating factor that was not examined in the present study.

The results also showed that digital governance exerted a stronger direct effect on public trust and accountability than NPM adoption alone ($\beta = .305$ versus $.237$). This finding was consistent with previous evidence indicating that digital transformation initiatives can enhance institutional legitimacy even under challenging administrative conditions [12]. However, unlike previous studies in which digital initiatives functioned primarily as a substitute for weak managerial systems, the present findings suggested that digital governance complemented ongoing NPM reforms rather than replacing them. This contrast implies that the relationship between digital governance and public trust may operate through different institutional mechanisms depending on the broader governance context. Similarly, previous research reported only modest associations between digital transformation and public-sector outcomes because of unequal citizen access to digital services [11]. The stronger effects observed in the present study may reflect the fact that public trust and accountability were measured from the perspective of civil servants rather than citizens, thereby capturing institutional perceptions instead of direct user experiences with digital services.

The partial mediation effect also extended the public value governance framework to the context of a South Asian federal bureaucracy [22]. Nevertheless, the findings should be interpreted cautiously because digital transparency tools do not necessarily translate into substantive accountability without complementary institutional safeguards [29]. The present data could not determine whether the observed relationship between digital governance and public trust and accountability reflected genuine improvements in accountability or merely a transparency effect, whereby visible digital interfaces enhanced perceived rather than actual accountability. This distinction has important implications for the design and evaluation of future public sector reforms.

4.2. Alternative Explanations and Unmeasured Contextual Factors.

Several alternative explanations for the digital governance–public trust relationship warrant explicit consideration, since the present design cannot rule them out. First, political context: the study period coincided with heightened public and media attention to anti-corruption and grievance-redress mechanisms in India, including expanded use of the CPGRAMS portal; respondents' perceptions of digital governance's trust dividend may partly reflect this contemporaneous political salience rather than a stable structural relationship. Second, corruption-control mechanisms operating independently of digital infrastructure such as vigilance enforcement activity or judicial oversight, were not modelled and may confound the observed DG–PTA path. Third, digital inclusion: because the sample comprises civil servants rather than citizens, the study cannot capture the well-documented unevenness of citizen-side digital access across income, geography, and literacy in India; a service that civil servants perceive as transparent and accessible may not be experienced that way by digitally excluded citizens, meaning the 'trust' modelled here is more accurately characterized as civil servants' perception of institutional accountability than a direct measure of citizen trust. Fourth, and relatedly, the study does not incorporate citizens' actual experiences with public services (wait times, grievance resolution outcomes, service quality as citizens experience it), which prior research suggests are stronger and more proximate determinants of citizen trust than administrators' internal assessments [19, 25]. These unmeasured factors do not invalidate the observed associations but do constrain the causal and substantive interpretation that can be placed on them, and are taken up further as priorities for future research.

4.3. Theoretical and Practical Implications.

The findings contribute to theory in several ways. First, they provide integrated empirical support for a model that bridges NPM literature, predominantly tested in OECD contexts, with digital governance research, validating the joint applicability of both frameworks in a large, federally complex developing economy [1, 2, 10]. Second, the partial mediation of organizational performance between reform inputs and public trust extends the public value governance framework [22] to a South Asian setting, demonstrating that institutional capability-building is a necessary intermediary in the reform-to-legitimacy pathway [23, 24], while the alternative explanations discussed, caution against overstating the strength of this extension. Third, the finding that digital governance carries larger direct trust dividends than NPM adoption alone enriches the digital-era governance thesis [10] and invites further inquiry into the mechanisms, transparency, speed of service, reduced corruption perception, through which digital infrastructure shapes citizen confidence in Indian public institutions [13, 15].

From a policy standpoint, the results carry direct implications for ongoing reform programmes, while the qualifications noted above counsel a measured interpretation. The Mission Karmayogi initiative, launched in 2020, focuses on competency-based civil service capacity development, an intervention broadly aligned with the internal organizational performance pathways confirmed in this study [20]. The findings suggest that such capacity investments are most effective when accompanied by parallel digital infrastructure enhancements that make performance gains legible to citizens, rather than remaining confined within administrative hierarchies [21, 26]. Importantly, the partial, rather than full, mediation of organizational performance indicates that digital governance can generate trust benefits

relatively independently of internal management quality, implying that ministries with weaker NPM implementation may nonetheless accumulate accountability credibility through credible digital service delivery [11, 27–30]. Policymakers should therefore treat digital and managerial reform as complementary rather than sequential priorities, investing concurrently in performance infrastructure and citizen-facing digital platforms, while pairing such investments with independent, citizen-based verification of the accountability gains this study infers from civil servants' perceptions alone.

4.4. Limitations and Future Research.

Three limitations bear directly on how these findings should be interpreted and used, and are stated explicitly here rather than folded briefly into the conclusion. First, the cross-sectional design captures associations at a single point in time and cannot establish temporal precedence or rule out reverse or reciprocal causation for example, officers who already perceive higher organizational performance may retrospectively rate NPM and digital governance practices more favourably, rather than those practices causing the performance gain. The SEM path estimates should therefore be read as evidence of a theoretically consistent, statistically supported pattern of association, not as proof of causal direction. Second, all constructs were measured through the self-reported perceptions of civil servant respondents rather than through objective performance indicators or citizen-based assessments. Although Harman's single-factor test and the unmeasured-latent-factor check suggest common method variance is unlikely to be the dominant driver of the observed relationships, self-report bias, social desirability, and the conflation of 'perceived' with 'actual' performance and trust cannot be fully excluded. This limitation is particularly consequential for the public trust and accountability construct, which in this study measures civil servants' assessment of institutional accountability rather than citizens' lived trust in government. Third, the sample is restricted to 360 Group A officers across four Delhi-based central ministries, selected purposively for their dual RFD and digital-infrastructure maturity. This design choice, while methodologically defensible for testing the hypothesized relationships under favourable measurement conditions, limits generalizability: the findings should not be extended to state government administrations, local self-government bodies, ministries with lower reform maturity, or non-Group A civil servants without further empirical testing in those settings.

Building directly on these limitations, four directions for future research are identified. First, longitudinal or panel designs that track the same officers and ministries across multiple RFD and Digital India reporting cycles are needed to establish temporal precedence and test whether NPM adoption and digital governance precede, rather than merely correlate with, performance and trust gains. Second, multi-level designs that sample across central, state, and local tiers of Indian public administration are needed to test whether the reform-to-performance-to-trust pathway identified here holds, strengthens, or weakens as institutional capacity and digital maturity vary; comparative investigations across India's 28 states, each representing a distinct institutional and digital maturity context, would yield particularly valuable insights into the heterogeneous pathways through which public sector reform translates into governmental legitimacy. Third, studies that pair civil servant perception data with objective performance indicators (RFD scores, service-delivery timelines, audit findings) and with citizen-reported trust and service-experience data are needed to disentangle perceived from actual performance and accountability, and to address the digital-inclusion and citizen-

experience gaps. Fourth, future SEM work in this domain should test the institutional-mandate and crisis-context moderators suggested by the cross-national contrasts for instance, whether the strength of the NPM–performance relationship is conditional on the degree of central enforcement, and whether the digital governance–trust relationship functions differently in stable versus crisis-affected institutional environments.

6. Conclusion

This study examined the relationships among New Public Management adoption, digital governance, organizational performance, and public trust and accountability among 360 senior civil servants across four Indian central government ministries, using a fully validated SEM model with bootstrap-tested mediation. The results confirm that both NPM adoption and digital governance are significant predictors of organizational performance, and that organizational performance partially mediates the pathway from reform inputs to public trust and accountability. Digital governance exerts a larger direct effect on public trust than managerial reform practices alone, highlighting the strategic importance of India's digital infrastructure programmes such as Digital India and NeGP, as mechanisms not merely for service delivery efficiency but for institutional legitimacy generation. These conclusions, however, are properly bounded by the cross-sectional design, the reliance on civil servants' self-reported perceptions rather than objective or citizen-based measures, and the purposively selected four-ministry sampling frame. Read within these bounds, the study offers an integrated, methodologically transparent contribution to the SEM-based literature on public sector reform, and a concrete agenda, longitudinal, multi-tier, and citizen-inclusive, for the research needed to extend and test the generalizability of its findings.

Author Contributions

All authors contributed equally to the conceptualization, methodology, data collection, formal analysis, writing, and revision of the manuscript. All authors read and approved the final manuscript.

Competing Interests

The authors declare that they have no competing interests.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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