

Managerial Complexities of Remote Team Supervision in E-Government: Insights from Nigeria

*Eze Titus Chinedu^{1*}*¹*Department of Public Administration, Veritas University Abuja. ORCID: 0009-**Dr. Sheila Charles²*0002-4907-4564. Email: ezet@veritas.edu.ng*Okeagu Charles³*²*Department of Public Administration and Local Government, University of Nigeria Nsukka - Nigeria.*³*Department of Public Administration Ogbonnaya Onu Polytechnic, Aba, Abia State.*

Abstract

The rapid adoption of e-government platforms in Nigeria has necessitated a shift from traditional onsite supervision to remote team management in public sector agencies. However, managers continue to face significant challenges in coordinating, monitoring, and evaluating staff who work outside conventional office spaces. The crux of the study is remote team supervision in e-government: Managerial complexities and insights from Nigeria. Adopting a qualitative research design, data were collected through in-depth semi-structured interviews with 20 supervisors and middle-level managers in selected federal e-government MDAs in Abuja, and through content analysis of organizational documents. The study was anchored on Leader-Member Exchange Theory. The study found out among others that most supervisors in Nigerian e-government agencies lack adequate training in digital collaboration tools, project management software, and data analytics. This results in over-reliance on informal channels like WhatsApp and phone calls, which weakens accountability and performance tracking. The paper recommends among others that government should prioritize stable electricity, broadband internet, and provision of official devices for staff. Public-Private Partnerships can be explored to extend connectivity to state and local government offices. Thus, the study concludes that without stable power and internet, even the most skilled supervisor cannot coordinate a remote team effectively. Similarly, without clear rules on remote work, supervisors are forced to improvise, which creates inequity and legal risk. The Nigerian public service must therefore move beyond a technology-first approach and invest equally in human capacity and institutional frameworks to support digital supervision.

Keywords: *E-Government, Remote Teams, Supervision, Managerial Complexities, Digital Skills, Public Administration, Nigeria, Leader-Member Exchange*

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Introduction

The rapid digitization of public service delivery in Nigeria has fundamentally altered how government work is organized and supervised. With the adoption of e-government platforms such as IPPIS, GIFMIS, IReV, and various MDA portals, many civil servants are now required to operate outside traditional office spaces. This shift, accelerated by the COVID-19 pandemic, has positioned remote work as a permanent feature of public administration rather than a temporary arrangement (Ojo & Popoola, 2023). The implication is that managers in Nigerian e-government agencies must now supervise teams whose members are geographically dispersed, technologically mediated, and often working asynchronously. Supervision in the public sector has historically relied on physical presence, direct observation, and hierarchical control. Bureaucratic structures in Nigeria, like in many developing economies, were designed around the assumption that employees would be co-located and monitored through face-to-face interactions (Adebayo & Salawu, 2022). The migration to remote modalities disrupts this logic. Managers can no longer rely on visual cues, spontaneous corridor conversations, or in-person meetings to gauge productivity, commitment, and compliance. This creates a managerial vacuum that must be filled with new competencies, tools, and policies. E-government itself was introduced to improve efficiency, transparency, and accountability in service delivery (World Bank, 2024). However, the internal managerial capacity to sustain these platforms has not developed at the same pace.

Many Nigerian public institutions deployed digital systems rapidly without corresponding investment in leadership training for remote supervision. As a result, managers are often supervising remote teams using tools and mindsets designed for on-site work, leading to friction and performance gaps (Nwankwo & Eze, 2023).

The Nigerian context presents unique challenges. Infrastructure deficits such as unstable electricity, poor internet connectivity, and limited access to devices mean that remote work is not uniformly possible across states and local governments (Bello et al., 2024). Supervisors must therefore manage not only human performance but also technical contingencies. This dual burden increases cognitive load and complicates accountability structures within MDAs. In traditional Nigerian public administration, trust is often built through physical presence and patronage networks. Remote supervision requires a shift toward outcome-based trust and digital accountability (Okeke & Ike, 2023). Many managers are uncomfortable with this transition because it reduces their direct control and exposes gaps in performance management systems that were previously masked by physical oversight. The workforce itself is also changing. Younger civil servants, who are more digitally literate, expect flexibility and autonomy, while older staff may struggle with digital tools and resist remote arrangements (Chukwu & Ibrahim, 2022). Managing this generational divide remotely requires communication strategies and HRM policies that most Nigerian e-government agencies have not formalized.

Performance measurement becomes more complex

in remote settings. In e-government, outputs are often digital and can be tracked, but outcomes related to citizen service quality are harder to quantify (UN E-Government Survey, 2024). Managers face the challenge of balancing quantitative metrics from system logs with qualitative assessments of service delivery, all without direct supervision. Data security and confidentiality present additional managerial headaches. Supervising remote teams handling sensitive government data requires enforcing cybersecurity protocols across home networks and personal devices (Afolabi & Musa, 2023). Nigerian public sector data protection laws are still evolving, leaving managers to navigate compliance with limited institutional support.

Motivation and organizational culture also suffer in remote arrangements. The sense of public service ethos, peer solidarity, and institutional identity that is reinforced in physical offices is diluted when teams are dispersed (Idris & Lawal, 2023). Managers must intentionally design virtual engagement strategies to maintain morale, but few have training or resources for this.

Policy ambiguity compounds all these challenges. Nigeria's public service rules do not yet clearly define remote work expectations, performance standards, or disciplinary procedures for remote staff (Federal Civil Service Commission, 2023). Managers are left to improvise, which creates inconsistency across departments and increases the risk of grievances and industrial disputes. Given these realities, understanding the managerial challenges of supervising remote teams in Nigerian e-government is urgent. The success of digital

governance reforms depends not just on technology, but on the human capacity to manage that technology effectively from a distance.

Statement of the Problem

Despite the push for e-government in Nigeria, the managerial capacity to supervise remote public sector teams remains underdeveloped, creating a significant bottleneck to service delivery. Most Nigerian MDAs adopted remote work reactively during COVID-19 without redesigning supervision frameworks, leaving managers to apply onsite supervision tactics to virtual environments (Ojo & Popoola, 2023). This mismatch has resulted in declining productivity, missed deadlines, and weak accountability in several digital service units. A core challenge is the lack of digital supervision tools and skills. Many supervisors in Nigerian e-government agencies lack training in performance dashboards, project management software, and virtual communication platforms (Nwankwo & Eze, 2023). Consequently, they default to micromanagement via WhatsApp and phone calls, which is inefficient and erodes trust. This skills gap is particularly acute at middle-management levels where most direct supervision occurs. Infrastructure instability further complicates supervision. Power outages and poor internet in many parts of Nigeria mean that supervisors cannot assume team members are continuously available online (Bello et al., 2024). This leads to delays in task completion and makes it difficult to hold employees accountable, as managers cannot distinguish between genuine connectivity issues and shirking. The problem of performance measurement is also pronounced. Traditional appraisal systems in the

Nigerian civil service rely on supervisor observation and attendance registers, which are irrelevant in remote settings (Adebayo & Salawu, 2022). E-government systems generate data, but managers lack the capacity to interpret these analytics for fair performance evaluation. This creates perceptions of bias and reduces employee motivation. Communication breakdown is another critical issue. Remote teams in e-government require clear, documented communication to avoid ambiguity, yet many Nigerian public institutions still depend on informal oral instructions (Okeke & Ike, 2023). Without proper digital documentation, supervisors struggle to track decisions, assign responsibilities, and resolve disputes, leading to role confusion.

Trust deficits between managers and employees are amplified in remote settings. In a culture where physical presence signals diligence, managers often suspect that remote staff are not working, while employees feel surveilled and unsupported (Chukwu & Ibrahim, 2022). This mutual distrust undermines collaboration and increases turnover intentions among skilled e-government staff. Data security risks pose a managerial dilemma. Supervisors are responsible for ensuring that staff handling sensitive citizen data comply with cybersecurity protocols while working from home, but they have limited authority and technical tools to enforce compliance (Afolabi & Musa, 2023). Breaches could have legal and political consequences, yet the responsibility falls on managers without adequate support. Employee motivation and well-being are also neglected. Remote work in the Nigerian public sector often

means longer hours, blurred work-life boundaries, and social isolation, but HR policies have not adapted to address these issues (Idris & Lawal, 2023). Managers report burnout among team members but lack frameworks for virtual welfare support.

Policy and regulatory ambiguity exacerbates every other challenge. The Federal Civil Service Rules do not clearly address remote work, leaving managers without guidance on leave, discipline, or performance standards for remote staff (Federal Civil Service Commission, 2023). This forces ad hoc decisions that create inequity and legal exposure. Collectively, these challenges threaten the sustainability of e-government in Nigeria. If managers cannot effectively supervise remote teams, the promise of digital governance to improve efficiency and transparency will not be realized. There is therefore a need to empirically investigate these managerial challenges and propose context-specific solutions.

Research Questions

1. What are the key managerial challenges faced by supervisors of remote teams in Nigerian e-government agencies?
2. To what extent do infrastructure deficits, digital skills, and policy gaps affect the effectiveness of remote team supervision in Nigeria?
3. What strategies can improve the supervision and performance management of remote teams in Nigerian e-government?

Objective of the Study

The broad objective of this study is to examine the managerial challenges of supervising remote teams in e-government and propose strategies for

improving supervision effectiveness in Nigeria. While the specific objectives are as follows:

1. To identify the managerial challenges associated with supervising remote teams in Nigerian e-government agencies.
2. To assess the influence of infrastructure, digital skills, and policy frameworks on remote supervision effectiveness.
3. To recommend strategies for enhancing the supervision and management of remote teams in Nigerian e-government.

Hypotheses

H1: There is a significant relationship between digital skills of supervisors and the effectiveness of remote team supervision in Nigerian e-government.

H2: Infrastructure deficits significantly hinder the supervision of remote teams in Nigerian e-government agencies.

H3: Clear policy frameworks significantly improve the effectiveness of remote team supervision in Nigerian e-government.

Literature Review

Remote Team Supervision in the Public Sector

Remote team supervision has gained prominence in public administration literature following global shifts to digital governance. Traditional models of supervision emphasized direct oversight, but e-government requires outcome-based management (Golden & Veiga, 2023). In developing countries, this transition is complicated by weak institutional capacity and resource constraints. Studies show that public sector managers often lack training for virtual leadership. Adebayo and Salawu (2022) found that Nigerian supervisors rely heavily on

physical presence to assess commitment, which becomes impossible in remote settings. This creates anxiety and reduces managerial effectiveness. Communication is central to remote supervision. Okeke and Ike (2023) argue that asynchronous communication in government can delay decision-making if not properly structured. Nigerian MDAs often lack standardized digital communication protocols, leading to information gaps. Performance management is another challenge. Nwankwo and Eze (2023) note that most Nigerian public institutions have not adapted KPIs for remote work. Supervisors struggle to differentiate between activity and impact when employees are not visible. Idris and Lawal (2023) found that low trust between supervisors and remote staff in Nigerian public agencies leads to over-monitoring and reduced autonomy, which in turn lowers morale. Technology adoption also matters. Afolabi and Musa (2023) observed that many supervisors in Nigeria are not comfortable with collaboration tools like Teams, Trello, or Asana, preferring informal channels that are hard to audit. The generational divide affects supervision styles. Chukwu and Ibrahim (2022) reported that younger civil servants prefer flexible, tech-driven supervision while older managers prefer hierarchical, in-person control, creating tension in remote teams. Accountability mechanisms in the public sector are not designed for remote work. Bello et al. (2024) argue that without digital audit trails, it becomes difficult to attribute responsibility for errors or delays in e-government service delivery.

E-Government Implementation and Human Resource Capacity in Nigeria

E-government in Nigeria has focused heavily on technology deployment with less attention to human capacity. The World Bank (2024) notes that while Nigeria has made progress with platforms like IReV and IPPIS, human resource gaps limit impact. Ojo and Popoola (2023) found that many civil servants deployed to e-government units lack the digital literacy required to operate and supervise remote workflows. Training programs are sporadic and not aligned with actual job demands. HRM policies have not kept pace with digital transformation. Federal Civil Service Commission (2023) guidelines still assume onsite work, creating legal and administrative uncertainty for remote arrangements in e-government. Capacity building is uneven across states. Bello et al. (2024) show that staff in Abuja and Lagos have better access to training and connectivity than those in rural MDAs, leading to disparities in supervision quality.

Motivation is also an issue. Idris and Lawal (2023) found that e-government staff often face increased workload without commensurate incentives, leading to burnout, especially when supervised remotely without adequate support. Data security training is lacking. Afolabi and Musa (2023) highlight that supervisors are not equipped to enforce cybersecurity practices among remote staff, exposing government systems to risk. Inter-agency collaboration is weak. Nwankwo and Eze (2023) argue that e-government requires cross-MDA coordination, but remote supervision makes joint projects harder to manage without strong leadership. Human resource capacity remains the weakest link in Nigeria's e-government strategy. Without addressing it, technological investments will not

translate to better governance.

Infrastructure and Policy Context of Remote Work in Nigeria

Infrastructure is a binding constraint on remote supervision in Nigeria. Power and internet instability directly affect the ability of managers to coordinate and monitor teams (Bello et al., 2024). Supervisors spend significant time troubleshooting technical issues rather than managing performance. The digital divide between urban and rural areas means that remote work policies cannot be applied uniformly. Chukwu and Ibrahim (2022) found that staff outside major cities face frequent disconnections, making supervision unpredictable. Policy ambiguity is a major barrier. The Federal Civil Service Rules (2023) do not define remote work hours, deliverables, or disciplinary procedures, leaving managers to improvise. This creates inconsistency and legal risk. Funding for remote work infrastructure is inadequate. Ojo and Popoola (2023) note that most MDAs expect staff to use personal devices and data, which raises equity and security concerns.

Cybersecurity policy is underdeveloped. Afolabi and Musa (2023) argue that without clear guidelines, supervisors cannot enforce safe remote work practices, increasing vulnerability of government data. Monitoring and evaluation frameworks have not been updated. Adebayo and Salawu (2022) show that performance appraisal still relies on attendance, which is irrelevant for remote e-government staff. Labor unions have also raised concerns. Idris and Lawal (2023) report that unions fear remote work will be used to casualize public sector jobs and erode worker rights, making

managers cautious about implementation. Despite these challenges, there is growing recognition that policy reform is needed. The World Bank (2024) recommends that Nigeria develop a national remote work policy for the public sector to provide clarity for managers and staff.

Theoretical Framework

Leader-Member Exchange (LMX) Theory

This study adopts Leader-Member Exchange (LMX) Theory as its theoretical framework. LMX theory, developed by Graen and Uhl-Bien (1995) and extended in recent public sector studies, posits that leaders develop different quality relationships with different subordinates, and the quality of these exchanges influences outcomes such as performance, satisfaction, and commitment (Anand et al., 2023). In the context of remote e-government teams, LMX is particularly relevant because physical distance makes relationship quality more critical. High-quality LMX relationships are characterized by trust, respect, and mutual obligation, which can substitute for direct supervision when face-to-face interaction is limited (Dulebohn et al., 2022). For Nigerian public managers, building high-quality LMX with remote staff may reduce the need for micromanagement and improve accountability.

Recent studies apply LMX to digital government. Golden and Veiga (2023) found that in remote public sector teams, supervisors who invest in personalized communication and support develop stronger LMX, which leads to higher employee engagement and better service delivery. In Nigeria, where institutional trust is often low, LMX can help bridge the gap between formal policy and actual

practice (Okeke & Ike, 2023).

However, LMX also has challenges in remote settings. Anand et al. (2023) note that without intentional effort, remote work can lead to in-group and out-group dynamics where only a few employees receive attention, increasing perceptions of favoritism. Nigerian managers must therefore be trained to maintain equitable LMX across dispersed teams to avoid conflict and ensure fair supervision.

Gap in Literature

While there is growing literature on remote work and e-government globally, there is limited empirical research on the managerial challenges of supervising remote teams specifically within the Nigerian public sector. Most existing studies on e-government in Nigeria focus on technology adoption, citizen satisfaction, or infrastructure, with little attention to internal HRM and supervision processes (Ojo & Popoola, 2023; Bello et al., 2024). This leaves a gap in understanding how managers are coping with the human side of digital governance.

Furthermore, existing HRM studies in Nigeria largely assume onsite work and traditional bureaucratic supervision (Adebayo & Salawu, 2022). There is a dearth of studies that examine how infrastructure deficits, policy ambiguity, and digital skills gaps uniquely affect remote supervision in e-government contexts. Addressing this gap is important for designing context-specific policies and training programs that can improve the effectiveness of Nigeria's digital public service delivery.

Methodology

This study adopted a qualitative research design to

explore the managerial challenges of supervising remote teams in e-government in Nigeria. The study was conducted among supervisors and middle-level managers in selected federal e-government MDAs in Abuja that actively use digital platforms such as IPPIS, GIFMIS, and IReV. A purposive sampling technique was used to select 20 participants with at least 2 years of experience supervising remote staff. Data were collected through in-depth semi-structured interviews and review of relevant organizational documents including remote work policies, performance reports, and internal memos. The interviews, which lasted 45–60 minutes each, were audio-recorded with participants' consent and transcribed verbatim. Data analysis was done using content analysis. The transcripts and documents were coded thematically to identify patterns, categories, and recurring themes related to digital skills, infrastructure, communication, trust, performance management, and policy gaps. To ensure credibility and trustworthiness, member checking and peer debriefing were carried out, and ethical approval was obtained with assurance of anonymity and confidentiality for all participants.

Discussion of Hypotheses

Hypothesis 1

H1: There is a significant relationship between digital skills of supervisors and the effectiveness of remote team supervision in Nigerian e-government.

This discussion reveals a strong and significant relationship between the digital skills of supervisors and the effectiveness of remote team supervision in Nigerian e-government agencies. Participants

consistently reported that supervisors who are proficient in digital collaboration tools, project management software, and data dashboards are better able to coordinate, monitor, and evaluate remote staff. This aligns with Golden and Veiga (2023) who argue that digital competence is now a core leadership competency in virtual public sector teams, because supervision can no longer rely on physical presence. In the Nigerian context, many supervisors were appointed and trained under traditional bureaucratic systems that prioritized face-to-face oversight. Okeke and Ike (2023) note that this has created a skills gap, as managers struggle to transition to platforms like Teams, Zoom, Trello, and government portals. Interviewees stated that when supervisors lack these skills, they resort to micromanagement through WhatsApp calls, which is inefficient and erodes trust. This supports Dulebohn et al. (2022) who found that low digital literacy leads to poor communication structures in remote teams. Digital skills also affect performance measurement. Respondents explained that supervisors who understand how to interpret system logs from IPPIS and IReV are able to set clear KPIs and track deliverables objectively. Afolabi and Musa (2023) confirm that data-driven supervision reduces bias and improves accountability in e-government. Without these skills, supervisors rely on subjective impressions, which employees perceive as unfair.

Another theme that emerged is training. Ojo and Popoola (2023) found that Nigerian MDAs rarely provide continuous digital training for managers. Participants in this study echoed that sentiment, stating that most digital skills were acquired

informally or through personal initiative. This lack of institutional support weakens supervision effectiveness, because managers cannot model the digital behaviors they expect from staff. Trust is also mediated by digital competence. Anand et al. (2023) argue that high-quality Leader-Member Exchange in remote settings depends on a supervisor's ability to use technology to maintain regular, transparent communication. Participants reported that digitally skilled supervisors hold virtual check-ins, share screens, and give timely feedback, which builds confidence among remote staff. Where these skills are absent, employees feel abandoned or over-scrutinized.

The generational dimension is important. Chukwu and Ibrahim (2022) observed a digital divide between younger and older supervisors in Nigeria's public service. Younger managers in this study demonstrated greater comfort with remote supervision tools and reported better team outcomes. Older supervisors admitted struggling with new platforms, leading to delays and miscommunication. This suggests that age-related digital gaps directly affect supervisory performance. Infrastructure interacts with digital skills. Bello et al. (2024) note that even skilled supervisors cannot be effective if they lack stable internet or power. However, participants argued that skilled supervisors are better at contingency planning, such as scheduling tasks offline or using low-bandwidth tools. Thus, digital skills help mitigate some infrastructure challenges. From the above discussion, we accept hypothesis 1 which states that there is a significant relationship between digital skills of supervisors and the effectiveness of remote team supervision in

Nigerian e-government.

Hypothesis 2

H2: Infrastructure deficits significantly hinder the supervision of remote teams in Nigerian e-government agencies.

The study found that infrastructure deficits constitute one of the most significant barriers to effective remote supervision in Nigerian e-government. Participants repeatedly cited erratic electricity supply and poor internet connectivity as major obstacles to monitoring staff, holding virtual meetings, and accessing government platforms. This supports Bello et al. (2024) who identified infrastructure as the binding constraint on digital governance in Nigeria. Electricity instability forces supervisors to reschedule meetings and delays feedback. One manager stated, "I cannot supervise if my laptop dies and there is no power for 8 hours." This matches World Bank (2024) reports that power outages reduce productivity in African public institutions by up to 30%. Supervisors end up spending time managing logistics rather than managing people. Internet quality is equally problematic. Nwankwo and Eze (2023) found that many Nigerian civil servants rely on personal data bundles because office or home Wi-Fi is unreliable. Participants confirmed this, noting that video calls often drop, files fail to upload, and access to IReV or GIFMIS is slow. This disrupts real-time supervision and creates frustration for both managers and staff.

The digital divide across regions further complicates supervision. Chukwu and Ibrahim (2022) argue that staff outside Abuja and Lagos face worse connectivity. Interviewees from satellite

offices confirmed they often work asynchronously because live supervision is impossible. This creates inequity in performance evaluation and team cohesion. Device availability is another issue. Afolabi and Musa (2023) note that many MDAs expect staff to use personal phones and laptops for official work without reimbursement. Supervisors reported that some team members lack laptops entirely, making it impossible to assign digital tasks. This undermines accountability because managers cannot verify work done. Cybersecurity infrastructure is also weak. Participants expressed concern that supervising staff on unsecured home networks increases data breach risks. Okeke and Ike (2023) warn that without VPNs and secure servers, e-government data is vulnerable. Supervisors feel responsible but lack tools to enforce security, which distracts from core supervisory duties.

Despite these challenges, some supervisors develop workarounds. Idris and Lawal (2023) found that resilient managers use offline templates and batch uploads to cope with poor connectivity. However, participants agreed these are temporary fixes and do not replace the need for stable infrastructure. The burden of improvisation increases managerial stress. Based on the above analysis, H2 is accepted.

Hypothesis 3

H3: Clear policy frameworks significantly improve the effectiveness of remote team supervision in Nigerian e-government.

The analysis indicates that the absence of clear policy frameworks is a major impediment, and conversely, that clear policies would significantly improve remote supervision effectiveness. Participants reported that current Federal Civil

Service Rules (2023) do not address remote work, leaving managers to make ad hoc decisions on hours, deliverables, discipline, and appraisal. This supports Adebayo and Salawu (2022) who argue that policy ambiguity creates inconsistency and legal risk in Nigeria's public service. One major gap is performance appraisal. Supervisors stated they still use attendance-based metrics that are irrelevant for remote staff. Ojo and Popoola (2023) found that without policy guidance, appraisal becomes subjective and prone to bias. Clear policies defining output-based KPIs would help supervisors evaluate staff fairly. Discipline and accountability are also unclear. Participants noted they do not know how to sanction remote staff for lateness or non-performance because the rules assume physical presence. Federal Civil Service Commission (2023) has not issued circulars on remote misconduct. This paralyzes supervisors and emboldens shirking, as confirmed by Nwankwo and Eze (2023).

Communication protocols are missing. Okeke and Ike (2023) recommend that e-government agencies adopt standardized digital communication policies. Interviewees said the lack of such policies leads to overreliance on informal WhatsApp messages, which are not auditable. Formal policies would mandate documentation and response times. Welfare and work-life balance are unaddressed. Idris and Lawal (2023) found that remote public sector workers experience burnout because policies do not define work hours. Supervisors in this study reported staff working late into the night with no overtime policy. Clear frameworks would protect both staff and managers. Data protection policy is

another gap. Afolabi and Musa (2023) argue that supervisors need clear guidelines on handling citizen data remotely. Participants said they are unsure what is allowed on personal devices. A formal policy would reduce anxiety and improve compliance. Interestingly, participants who worked in MDAs with internal remote-work memos reported better supervision outcomes. Golden and Veiga (2023) found that even interim policies improve clarity and trust. This suggests that policy clarity has direct managerial benefits. Therefore, the analysis support the hypothesis which states that clear policy frameworks significantly improve the effectiveness of remote team supervision in Nigerian e-government.

Findings

From the above discussion, the study found out the following:

1. Digital skills gap among supervisors reduces supervision effectiveness: Most supervisors in Nigerian e-government agencies lack adequate training in digital collaboration tools, project management software, and data analytics. This results in over-reliance on informal channels like WhatsApp and phone calls, which weakens accountability and performance tracking.

2. Infrastructure deficits severely constrain remote supervision: Erratic electricity supply, poor internet connectivity, and inadequate devices are major barriers. Supervisors spend more time managing logistics than managing people, and team members outside Abuja and Lagos face greater disconnections and delays.

3. Absence of clear policy frameworks creates managerial uncertainty: The Federal Civil Service

Rules do not address remote work. This leaves supervisors without guidance on performance appraisal, discipline, work hours, and data security, leading to inconsistent and ad hoc supervision practices.

4. Trust and communication breakdowns are common in remote teams: The shift from physical to virtual supervision has eroded trust between managers and staff. Poor digital communication protocols and lack of documentation create role confusion, delays in decision-making, and perceptions of favoritism.

5. Performance management systems are not adapted for remote work: Existing appraisal systems still rely on attendance and physical observation. Supervisors lack objective, output-based metrics for evaluating remote staff, which increases bias and reduces employee motivation.

6. Employee welfare and motivation are neglected in remote arrangements: Remote work has increased workload, blurred work-life boundaries, and caused social isolation. However, HR policies and supervisory practices have not adapted to provide virtual welfare support, resulting in burnout and higher turnover intentions among skilled e-government staff.

Recommendations

Based on the findings, the study recommends the following:

1. Institutionalize digital leadership training for supervisors: The Federal Government and Head of Service should mandate regular training on digital tools, virtual communication, data dashboards, and remote performance management for all supervisors in e-government MDAs.

2. Invest in reliable ICT infrastructure:

Government should prioritize stable electricity, broadband internet, and provision of official devices for staff. Public-Private Partnerships can be explored to extend connectivity to state and local government offices.

3. Develop a national remote work policy for the public sector:

The Federal Civil Service Commission should issue clear guidelines on remote work hours, output-based KPIs, disciplinary procedures, and data protection to guide supervisors and protect employees.

4. Adopt standardized digital communication and documentation protocols:

MDAs should implement official platforms like Microsoft Teams, Slack, or Trello for task assignment and feedback. All instructions and decisions should be documented to ensure transparency and auditability.

5. Redesign performance management systems for remote contexts:

Appraisal should shift from attendance-based to outcome-based metrics using data from e-government platforms. Supervisors should be trained to interpret system analytics for fair and objective evaluation.

6. Integrate employee welfare and well-being into remote work policy:

HR departments should design virtual engagement programs, mental health support, and clear work-life boundaries. Managers should be trained to recognize and address burnout in remote teams.

Conclusion

This study has shown that the adoption of e-government in Nigeria has fundamentally changed how public sector work is supervised, but managerial capacity has not kept pace with

technological change. The findings reveal that supervisors face significant challenges related to digital skills deficits, infrastructure instability, and policy ambiguity. These challenges are compounded by outdated performance management systems and weak communication structures that were designed for onsite bureaucratic work. As a result, the effectiveness of remote supervision in Nigerian e-government agencies remains low, threatening the sustainability of digital governance reforms. The paper highlights that infrastructure and policy are not just technical issues but core managerial problems. Without stable power and internet, even the most skilled supervisor cannot coordinate a remote team effectively. Similarly, without clear rules on remote work, supervisors are forced to improvise, which creates inequity and legal risk. The Nigerian public service must therefore move beyond a technology-first approach and invest equally in human capacity and institutional frameworks to support digital supervision.

From a theoretical perspective, the study confirms that relationship-based leadership models like Leader-Member Exchange are critical in remote public sector settings. Trust, communication, and mutual support become more important when physical oversight is not possible. However, building high-quality LMX in Nigerian e-government requires intentional effort, training, and policy backing. Managers cannot be expected to develop these competencies on their own without institutional support. For Nigeria to fully benefit from e-government, urgent reforms are needed in three areas: people, policy, and infrastructure.

Government must equip supervisors with digital skills, provide the necessary infrastructure, and codify remote work practices into public service rules. Addressing these challenges will improve service delivery, enhance accountability, and ensure that Nigeria's digital transformation delivers on its promise of a more efficient and transparent public sector.

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