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Digital Administration: Strategies for Transforming Public Service Delivery in Nepal

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Abstract

This paper examines the impact of digital transformation on service delivery with a focus on Nepal's government context. Drawing from international case studies and scholarly literature, the research explores how digital technologies can enhance efficiency, transparency, and citizen engagement. It highlights key barriers to digital administration, such as inadequate infrastructure, limited digital literacy, weak institutional capacity, and a lack of policy coherence. The primary data was collected from 75 participants, including 45 service recipients and 30 service providers, selected from Kathmandu, Gorkha, Butwal, Biratnagar, and Dhangadhi. The study revealed a significant trust gap: nearly 46.67% of respondents rated e-governance services poorly, and only 15.56% expressed high satisfaction. Furthermore, 37.77% found digital systems insufficient for meaningful engagement, signaling a disconnection between implementation and public experience. The mean reveals respondents cite unclear guidelines, limited rural coverage, and inconsistent performance on the effectiveness of digital administration. Despite these issues, it highlights the transformative potential of technologies like AI and big data when guided by inclusive, ethical frameworks. Recommendations include enhancing digital literacy, improving infrastructure, simplifying service guidelines, institutional readiness for citizen satisfaction, and fostering participatory governance, which require technological investment, deep commitment to equity, accountability, and sustainable public value creation.

Keywords: Administration, citizen engagement, digital guidelines, e-government, service delivery

Introduction

This paper explores the issues further by analyzing how digitization initiatives can improve efficiency and effectiveness in public service delivery. Nepal's digital strategy targets modern infrastructure, connectivity, productivity, and transparent governance. Achievements in digital administration include nationwide fiber, 4G, e-payments, and digital signatures. The Future goals of digital administration for transforming public service delivery include 5G and satellite deployment. It facing challenges—political commitment, needs to improve digital literacy, and infrastructure for building efficient, accountable, e governance (Shah, 2023). It also examines governance mechanisms for responsible AI use, frameworks for digital inclusion, and the role of citizen engagement in shaping digital services. Through a comprehensive review, the research aims to provide actionable insights that support equitable, secure, and transparent public sector transformation. This research examines the benefits of digitizing public service delivery, focusing on its impact on efficiency, effectiveness, and citizen engagement. Neupane (2023) emphasizes how integrating AI and automation enhances efficiency, transparency, responsiveness, and effectiveness in public service in Nepal under the Digital Nepal Framework. It highlights challenges like the digital divide, ethics, and inclusivity. It reviews key initiatives, explores challenges in AI implementation, and proposes governance and technology solutions to ensure equitable access. Emphasizing citizen involvement in digital design fosters inclusion, ownership, and responsiveness.

In today's rapidly evolving digital era, transforming public service delivery has emerged as a top priority for governments worldwide (Latupeirissa et al. 2024). The growing integration of advanced technologies and innovative operational models is reshaping the ways in which public administration is conducted. From public transportation and healthcare systems to urban safety and municipal services, the digitization of governance is proving essential to managing the increasingly complex needs of modern societies. This transformation is multifaceted, influenced not only by technological capabilities but also by political, economic, cultural, social, and spatial planning dimensions. Notably, developments in artificial intelligence (AI), machine learning, and big data analytics are playing a pivotal role in this transition. However, while digital technologies offer numerous benefits, a balanced and cautious approach is necessary. Overemphasis on technology without adequate consideration of its societal impacts can lead to unintended consequences. A key concern is the role of citizens in the digitalization of the public sector. As Kautonen and Nieminen (2016) pointed out, failing to engage citizens meaningfully in these initiatives may result in policies that exacerbate problems rather than resolve them. In recent years, there has been growing recognition of the importance of involving citizens as co-creators in policymaking, not merely as passive recipients of public services.

The overarching aim of public sector digitization is to enhance service delivery by leveraging the power of data, digital platforms, and interconnected systems. Governments that embrace this shift can achieve significant benefits, including

streamlined processes, reduced bureaucratic overhead, faster service delivery, and a more user-friendly experience for citizens. According to Teixeira, Gonçalves, and Taylor (2021), a successful digital transformation strategy must go beyond technological upgrades and instead focus on managing citizen expectations, delivering real value, and fostering transparency. Strategic planning is crucial for the successful implementation of digital initiatives. As Arfeen and Saranti (2021) emphasize, effective digital government strategies should align with the local realities of governance, address institutional readiness, and define clear frameworks for citizen interaction. Without these foundations, digitization efforts often falter, remaining limited to basic e-government functionalities like website creation rather than achieving deeper transformation. The broader objective of digital programs should be to reengineer government operations to improve efficiency, increase citizen satisfaction, and enhance participatory governance.

Digital transformation presents significant challenges. One key concern is managing the complexities of involving citizens directly in decision-making processes. While this inclusion is beneficial, it also introduces new dynamics, such as the potential for conflicting opinions, disagreements over policy priorities, and struggles for influence among different stakeholder groups. Additionally, digital tools, while efficient, raise pressing concerns about data privacy and cyber security. With the increase in data collection by public institutions, safeguarding citizens' personal information becomes a paramount responsibility. Mishandling such data can lead to breaches of trust and legal liabilities. As Josefsson and Krettek (2021) note, these technologies are not just tools—they are transformative forces that reshape how governments operate and interact with citizens. The shift toward digitization has paved the way for more citizen-centric service delivery, which relies heavily on responsive design, real-time data processing, and automated systems. These changes have also allowed for the reorganization of administrative workflows to increase agility and adaptability, as highlighted by Halsbenning et al. (2021).

For public officials, this new landscape demands a wide range of competencies. In addition to technical skills like data analytics and platform navigation, officials must also master digital communication and citizen engagement. According to Horobets (2020), Kim and Eom (2019), and Purnomo (2021), these capabilities are essential for creating meaningful digital interactions and ensuring that public services are accessible, inclusive, and responsive to citizen needs. Despite ongoing investments, many e-government projects still fall short of their potential, often failing to evolve beyond superficial digital inter-faces.To address these limitations, governments must remain neutral in their approach to digitalization—acknowledging its advantages while also being mindful of the risks and constraints. Alvarenga et al. (2020) underscore the need for aligning digital transformation efforts with effective knowledge management systems within public institutions. This alignment is key to achieving long-term sustainability and ensuring that data-driven governance contributes meaningfully to public value creation.

There is also increasing emphasis on

integrating AI into public administration to enhance decision-making and optimize resource allocation. As Androniceanu (2023) suggests, AI has the potential to improve both the efficiency and intelligence of service delivery systems. However, the successful application of AI must be adapted to the specific context of each city or jurisdiction, as studies such as Debeljak and Dečman (2023) reveal that a city's digital maturity is often closely tied to its population size and infrastructure capabilities. Digital transformation also necessitates significant institutional changes. Filgueiras, Flávio, and Palotti (2019) describe this as an evolution of organizational culture and structure within public bodies. Yukhno (2024) adds that managing big data effectively is another pressing concern, especially given the volume, variety, and velocity of data generated by digital systems. Data governance frameworks must be established to regulate access, usage, and ethical handling of data across agencies. Henman (2020) further warns that the integration of AI introduces new challenges related to accountability, transparency, bias, and the legal implications of automated decision-making.

Another central challenge lies in ensuring that digital transformation does not deepen social inequalities. While digital platforms can improve service access for many, they may simultaneously marginalize individuals who lack digital literacy or internet access. This "digital divide" raises questions about fairness and inclusivity. Without targeted efforts to bridge this gap, digital government initiatives may fail to serve the very populations most in need.There is also concern about the potential erosion of human interaction in public service. Over-reliance on digital communication can reduce empathy and create impersonal experiences. This can be especially detrimental in areas like healthcare or social services, where understanding individual circumstances is critical. Ultimately, the successful digitization of the public sector hinges on a balanced approach. It must combine technological innovation with ethical considerations, citizen engagement, and institutional reform. As Saxena, Muzellec, and McDonagh (2022), along with Aminah and Saksono (2021), emphasize, digital transformation must be people-centered. Citizen inclusion is not only beneficial—it is essential to overcoming implementation challenges and ensuring that digital tools truly serve the public interest. Twenty-first-century faces uneven digital transformation across sectors and regions, and it poses major challenges in a developing country like Nepal. Rapid technological advancement creates disparities, with economies struggling to adapt (Aminah, &Saksono, 2021; Rohayati & Abdillah, 2024). There is a lack of research on the impact of digital administration in such contexts. Public administration and governance in Nepal lack clear strategies for effective digital integration. Digital administration confirms ethical decision-making, accountability, clear roles, transparent policies, and citizen participation in managing digital resources effectively.

The study highlights the current state of public sector digitization, identifying required competencies and potential risks. It underscores the importance of balancing innovation with ethical, privacy, and bias concerns, offering insights for creating inclusive, secure,

and effective digital public services that enhance citizen-government interactions. Challenges include infrastructure gaps and digital literacy, urging strategic investments for sustainable e-governance development. E-governance in Nepal began gaining attention with the 2000 IT policy, building on milestones like the 1974 National Computer Center. It transforms public administration, but success requires a comprehensive regulatory framework, strong coordination, and user-friendly digitalization supported by updated policies (Giri, 2019). In the case of Nepal, the number of research works on digital public administration is nominal. The proposed question is: Does the existing public service lead to effective digital administration/service in Nepal? For this, it analyzes how service quality and effectiveness of digital administration affect the efficiency of recipient satisfaction, and evaluates the overall accessibility of government services in influencing citizen satisfaction with government services.

Review and Conceptual Framework

The selected studies demonstrated that digital transformation greatly influences knowledge management within public organizations. Moreover, knowledge sharing and organizational learning were identified as critical factors in the success of digital initiatives. Despite these findings, the literature revealed that there remains a lack of consensus on how digital transformation is defined in public sector contexts. Latupeirissa et al. (2024) observe that it indicates the need for further empirical investigation to clarify how public administrators interpret and implement digital transformation strategies. The review was collaboratively validated by multiple researchers, with discrepancies resolved through discussion and consensus-building, strengthening the study's overall reliability and insight into digital transformation in public service delivery. Alvarenga, Matos, Godina, and Matias (2020) examine the evolving role of digitalization in public administration. Through a quantitative approach that combines a literature review and a survey of 54 employees from Portugal's Ministry of the Environment, the study examines the intersection of digital transformation and knowledge management. It suggests that integrating digital tools enhances organizational knowledge sharing, leading to improved public sector performance. The research underscores the need for further exploration of this relationship to optimize digital government initiatives. Debeljak and Dečman (2023) investigate how municipality population size influences digital maturity. Contrary to expectations, larger municipalities aren't universally more digitally mature. While population size affects specific indicators like open data sharing and security, it doesn't determine overall digital maturity. It suggests that tailored digital maturity indicators are crucial for effective transformation in urban governance. Latupeirissa et al. (2024) provide an in-depth analysis of digital transformation in public services. It highlights improvements in efficiency, citizen engagement, and accountability through digital tools. Challenges such as digital divides, accessibility, and data security are also discussed. The study emphasizes technological readiness and citizen involvement as crucial factors for successful implementation.

Wang and Ma (2022) investigate

how digital interfaces impact citizen engagement and satisfaction in public service evaluations. Utilizing data from the government service evaluation system in a Chinese city, the paper reveals that mobile applications significantly enhance citizens' willingness to evaluate services and improve their satisfaction compared to traditional offline methods. It underscores the importance of digital tools in reducing administrative burdens and fostering more responsive governance. Androniceanu (2023) examines the integration of digital technologies and AI into public institutions. It emphasizes the necessity for structural reforms to reduce bureaucracy, enhance service quality, and improve transparency.The study advocates for substantial public investments to support these transformations, aiming for more efficient and intelligent governance in EU member states. Yukhno (2024) delves into how big data technologies are reshaping public sector operations. The study emphasizes the necessity of establishing a unified state digital ecosystem centered on big data to enhance service delivery and meet evolving citizen expectations. It also highlights challenges such as data quality, interoperability, and the need for strategic investments in AI and machine learning to realize the full potential of data-driven governance.

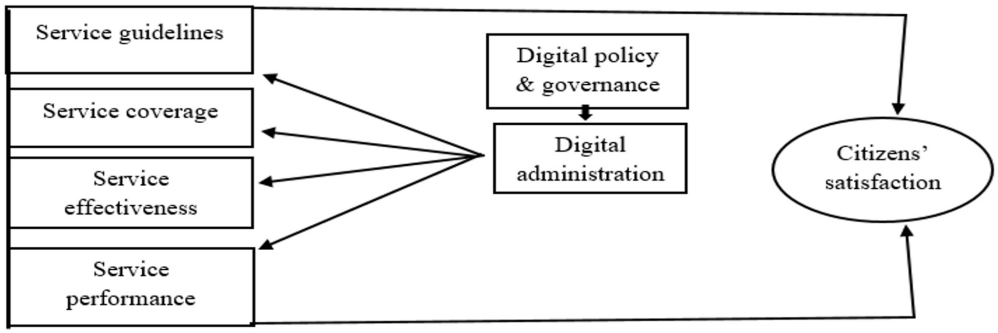
Purwanti, Purwanto, and Jamaludin (2022) examine how system functionality and data privacy influence citizens' perceptions and engagement with e-government services in Indonesia. Utilizing the technology acceptance model, the research finds that both factors positively affect perceived ease of use and usefulness, which in turn enhance citizen participation. The study underscores the importance of user-friendly and secure digital platforms in fostering active civic involvement. Nicholls (2019) challenges the assumption that increased web-based public services lead to improved outcomes. Analyzing English local government data from 2002–2008, the research finds no significant link between web development and service performance or cost-effectiveness. The study suggests that digitalization alone may not enhance public sector efficiency or quality (Latupeirissa et al. 2024). Goloshchapova et. al. (2023) examine the role of digital government in enhancing public service efficiency and economic development. Based on a survey of 400 respondents from the Czech Republic and Russia, the study highlights that citizen orientation is crucial for successful e-government initiatives. It advocates for inclusive policies and international cooperation to foster digital transformation in public administration.

Grigalashvili (2023) states that digital government transforms public service by using technology for data-driven decisions, transparency, accountability, efficiency, and increased public trust. E-government uses information and communication technology to digitize procedures, documents, and services, enhancing governance and service delivery. When public authorities and administrative personnel collaborate effectively, digital tools optimize management, organization, and responsiveness of government services for better outcomes (UN, 2005, 2016, 2018 & 2020). According to the concept of the UN, digital government has reached a critical point. It is no longer a stand-alone or auxiliary tool, nor does it represent a panacea for government deficiencies or inefficiencies; it should be seen as an integral and thoroughly integrated

aspect of the physical functioning of public institutions and services delivery (2022). Thus, e-government transforms governance through data, technology, transparency, accountability, improved services, and increased public trust. This framework relates to Table 4, which calculates mean scores of service guidelines, service coverage, service effectiveness, and service performance to examine the relationship between digital administration and citizens' satisfaction.

Figure 1

Digital Policy and Administration



Prepared by the author, 2025

Neupane (2023) asserts that the rapid growth of technology has boosted efficiency, transparency, and responsiveness in public services. AI and automation are essential to meet citizen expectations. Nepal has transitioned from paper-based to digital governance, with the digital Nepal framework aiming to enhance service delivery and productivity. Challenges include the digital divide, ethical AI use, and citizen participation. Prioritizing infrastructure, innovation, and capacity-building is vital for progress. The internet has transformed government bureaucracy from manual to digital. Digital governance, or e-governance, uses ICT to provide seamless, transparent, and efficient public services, redefining government operations (Roy, 2005). Sharma (2020) analyzes Nepal's digital governance progress, highlighting ICT adoption in improving transparency, efficiency, and citizen engagement. It indicates there is a huge gap in the context of Nepal about the need for digitalization in the public administration for good service delivery and making good decision.

Research Methods And Design

This section presents the research design and methodology employed in the study, focusing on the mixed-method approach to address the research questions. According to Aminuzzaman (1991), the research method is the strategic action plan aligned with the theoretical framework and hypotheses. It is a blueprint controlling factors that may affect validity. Social science research design includes qualitative, quantitative, and mixed methods, further classified as exploratory, descriptive, or causal. This study examined both service providers and receivers using questionnaires, followed by systematic data collection and analysis based on the analytical framework.

Mixed method combines quantitative and qualitative approaches for balanced data analysis. Creswell (2009) explains that it integrates open-ended qualitative data with closed-ended quantitative responses, and enhances research depth and validity. Questionnaires effectively gathered data from diverse individuals from January to March 2025, and it involved 75 participants. Randomly selected 45 service recipients from Kathmandu, Gorkha, Butwal, Biratnagar, and Dhangadhi in each city to reduce bias and ensure generalization. A purposive sampling method was used to select 30 service providers from the same research areas to gain deep insights from the targeted group. A 5-point Likert scale measured attitudes toward aid effectiveness. Additionally, 5 key service providers and 3 service seekers were interviewed with open-ended questions to explore the current status and challenges of digital governance in service delivery in Nepal.

Results and Discussion

Results

The results of this research provide a detailed and insightful examination of the role of digitization in public service delivery. Through meticulous data extraction and analysis, it identifies the key benefits, challenges, and implications of integrating digital technologies in public administration. It explores significant themes and patterns that demonstrate how digital administration is effective, or it has some problems in reshaping the delivery of public services, particularly through innovations.

Table 1

Sex Distribution of Respondents (n=75)

Sex	Respondents	Percent
Male	49	65.33
Female	26	34.67
Other	0	0
Total	75	100

Source: Field Study, 2025

This table indicates the sex distribution of the respondents. Out of 75, the male-female ratio was 49:26. Inclusion of males and females in data collection enhances the accuracy and representativeness of research findings.

Table 2

E-Governance Effectiveness (n=45)

Effectiveness of service delivery	Respondents	Percent
Poor	21	46.67
Medium	17	37.77
Good	7	15.56
Total	45	100

Source: Field Study, 2025

The data on E-Governance effectiveness, based on responses from 45 service recipients, reflects varying perceptions regarding the effectiveness of digital service delivery. According to the results, 46.67% of respondents rated the effectiveness of e-governance services as 'poor,' indicating that nearly half of the participants experienced dissatisfaction or faced challenges with the current digital systems. Meanwhile, 37.77% of respondents assessed the services as 'medium,' suggesting that a significant portion found the services moderately effective, neither entirely inadequate nor fully satisfactory. Only 15.56% rated the effectiveness as 'good,' showing that a relatively small number of individuals had a positive experience with digital governance. These results imply that while digital governance is being implemented, its effectiveness still falls short of public expectations. The findings highlight the need for further improvements in service delivery mechanisms, technical infrastructure, user-friendliness, and accessibility to ensure a broader acceptance and trust in digital governance systems among citizens. Saxena, Muzellec, and McDonagh (2022) explain, digital capabilities enable public institutions to enhance the customer experience and redefine their interactions with citizens. Additionally, collaborative governance, supported by digital technologies, leads to more inclusive, participatory approaches to policy-making and service design (Filgueiras, Flávio, &Palotti, 2019).

Table 3

Effectiveness of E-governance Service to Client Readiness (n=30)

E-governance to client readiness	Respondents	Percent
Poor	11	36.67
Medium	13	43.33
Good	6	20.0
Total	30	100

Source: Field Study, 2025

The data presented in Table 3 on the effectiveness of e-governance services about client readiness, based on a sample of 30 respondents, reveals a mixed perception among service recipients (Latupeirissa et al. 2024). According to the findings, 36.67% of respondents rated the effectiveness of e-governance in supporting client readiness as poor. This suggests that over one-third of users find the current digital systems inadequate in preparing and supporting them for accessing services effectively. Meanwhile, the majority—43.33%—rated it as medium indicating that although the services are functional to some extent, there is considerable room for improvement in terms of accessibility, responsiveness, and user support. Only 20% of respondents evaluated the services as good reflecting a limited number of clients who feel well-supported and ready to engage with e-governance systems. These results highlight that while some progress has been made, the current digital service delivery still

lacks consistency and inclusiveness. Enhancing user education, improving digital infrastructure, and streamlining platforms could significantly improve client readiness and satisfaction.

Digital transformation has been shown to influence how citizens perceive public service quality. Wang and Ma (2022) note that citizens report higher satisfaction levels when digital services are integrated effectively, pointing to a direct link between digital governance initiatives and service evaluations. These improvements are further enhanced by the use of artificial intelligence in public administration, which supports smarter, data-driven decision-making processes (Androniceanu, 2023). It facilitates a move from traditional bureaucratic models toward citizen-centric service models.

Table 4

Mean Scores Calculation (Using Likert values 1–5)

Categories	Questions	Mean scores
Service guidelines	1. Clear and accessible user guidelines	2.46
	2. Easy to understand steps	2.56
Service coverage	3. Accessible in urban and rural areas	2.22
	4. Most essential services available digitally	2.33
Service effectiveness	5. Reduces time to access services	3.00
	6. Satisfied with accuracy and reliability	2.49
Service performance	7. Smooth service without technical issues	2.42
	8. Satisfied with overall performance	2.51

Service guidelines: It shows the mean scores: 2.46 and 2.56. These are slightly above 'disagree' and close to 'neutral'. Most of the respondents feel that digital government services lack clarity and ease of use. This suggests a need for better communication and instruction design, possibly with localized content or multimedia support.

Service coverage: It shows the mean scores: 2.22 and 2.33, which are the lowest across all categories. Respondents perceive that digital services are not reaching rural areas effectively, and that many essential services may still not be digitized. This reflects a digital divide, especially in remote or under-resourced areas.

Service effectiveness: It indicates the Mean Scores: 3.00 and 2.49. The respondents recognize that digital services can save time, but are less confident about the reliability and accuracy of the systems. This case reflects technical and infrastructure issues.

Service performance: Its Mean score is 2.42 and 2.51. Its ratings are close to 'neutral' but leaning towards 'disagree'. The respondents are not satisfied with system stability and overall performance, which could indicate frequent outages, slow systems, or poor.

The analysis indicates a moderate level of dissatisfaction with digital public services. Respondents highlight issues such as unclear service guidelines,

inadequate coverage in rural areas, and inconsistent system performance. Although the potential for time efficiency is acknowledged, concerns regarding reliability, accessibility, and overall user experience underscore the need for significant improvements in digital service delivery.

Discussion

Digitalization brings significant benefits to public service delivery, including enhanced efficiency, better citizen experiences, and improved governance outcomes. According to Alvarenga, Matos, Godina, and Matias (2020), the integration of digital technologies into public sector processes has a direct positive impact on service delivery by streamlining operations and reducing bureaucratic inefficiencies. In citizen-centric contexts, digital tools contribute to the creation of services that are easier to use, more accessible, and tailored to the public's needs (Debeljak & Dečman, 2023). This shift not only raises the overall quality of public services but also improves public satisfaction and trust in government.

Ineffective digital guidelines create problems for service delivery. As this, digital transformation is not just a technological advancement but a broader shift toward citizen-centric governance (Latupeirissa et al. 2024). By focusing on user experience, public administrations can design services that are more responsive to the actual needs of the population. This approach helps build trust, strengthens public accountability, and makes service delivery more transparent and efficient (Saxena, Muzellec, & McDonagh, 2022). In more advanced implementations, such as cloud-assisted vehicular networks, governments face the dual challenge of innovation and privacy. Developing a privacy-preserving reputation updating scheme in these networks requires integrating data privacy, usability, and public trust. Techniques such as differential privacy, secure multiparty computation, and homomorphic encryption can protect sensitive data while enabling efficient network operations.

To support these initiatives, governments in Nepal must collaborate with technology experts and privacy advocates to develop clear guidelines. These should include data governance standards, consent mechanisms, anonymization protocols, and secure data transmission practices. Such a comprehensive approach ensures not only effective service delivery but also protects citizens' rights, which is essential for maintaining public trust in digital governance. Transitioning from bureaucratic structures to citizen-centered governance requires continuous evaluation. Though qualitative, this shift can be measured using indicators such as service accessibility, response times, satisfaction rates, and levels of transparency. Citizen feedback mechanisms, participatory evaluations, and user analytics provide essential insights for assessing progress.

Digitalization of big data in public service delivery

45 service seeker recipients and 30 service providers opine on the use of big data. They stated that big data plays a crucial role in driving digital transformation and enhancing public service delivery. Wang and Ma (2022) identify several mechanisms through which big data contributes to improved public administration:

Enhanced decision making: Big data offers deep insights and a larger knowledge base, enabling public officials to make informed decisions.

Predictive analytics: Forecasting future trends allows for more proactive resource allocation and strategic planning.

Real-time monitoring: Operational management in real-time improves responsiveness and reduces inefficiencies.

Optimized resource allocation: Understanding demand patterns enables better distribution of public resources.

Process automation: Automating repetitive tasks saves time and reduces operational costs.

Tailored services: Data analytics supports the delivery of personalized services based on user needs.

Fraud detection: AI-driven analysis aids in detecting irregularities and ensuring regulatory compliance.

Transparency and collaboration: Open data enhances cooperation across agencies and increases public trust.

Yukhno (2024) emphasizes the significance of big data technologies in monitoring technological operations in real-time, highlighting their importance in improving overall service quality and efficiency. Similarly, Nicholls (2019) argues that web-based service delivery challenges outdated assumptions about the inefficacy of digital transformation, showing instead that such platforms can deliver cost-effective, high-quality services. Moreover, Moore (2019) confirms that big data enhances administrative performance by improving decision-making speed and reducing information management costs. Yukhno (2024) adds that this technological shift supports the development of a unified, data-centered digital ecosystem, a critical foundation for future governance models.

Citizen engagement plays a pivotal role in the successful implementation of digital transformation in the public sector. It is not merely a supportive element but a central driver that ensures public digital services are relevant, inclusive, and trusted. By actively involving citizens in the design, implementation, and evaluation of digital initiatives, governments can improve the responsiveness, effectiveness, and legitimacy of public services. Public trust is a key factor in the adoption and sustained use of digitized services. When citizens are engaged from the outset, they are more likely to trust government systems and provide constructive feedback, resulting in improved digital service delivery. Engaging citizens in this manner reinforces democratic values by promoting transparency, accountability, and responsiveness. It ensures that digital technologies serve the public interest rather than simply fulfilling administrative or technical goals.

A balanced approach for E-governance

Despite these advancements, a balanced approach to digital transformation is essential. While the benefits of AI and big data are clear, they must be weighed against the risks and ethical considerations inherent in their deployment. Public administrations must ensure transparency, protect individual rights, and maintain accountability throughout the digital transformation process. Digitization in public service delivery offers significant opportunities to improve efficiency, enhance citizen experiences, and modernize governance. However, the successful adoption

of digital technologies depends on a comprehensive understanding of both their potential and their limitations. By prioritizing citizen engagement, addressing ethical concerns, and promoting data-driven innovation, governments can foster a more inclusive and effective public service system that meets the evolving needs of the digital age.

Successful implementation of digitization initiatives in public service delivery requires more than just adopting new technologies—it demands a fundamental shift in organizational culture, the creation of regulatory sandboxes to ethically test emerging technologies, and the removal of long-standing institutional barriers. These barriers include inadequate legal frameworks, insufficient data integration, underdeveloped ICT infrastructure, limited digital competencies among public employees, and persistent bureaucratic inertia. In-depth analysis of digitization efforts has shown that digital tools and platforms can significantly enhance governance practices and the quality of public services. However, to ensure responsible and effective implementation, governments must understand both the transformative benefits and the challenges associated with deploying digital technologies and artificial intelligence (AI) in public administration. To guide this understanding, digitalization in the public sector can be categorized into three core components: benefits, challenges, and success factors. Mapping these elements provides a structured overview of the digital transformation landscape and emphasizes the importance of balancing opportunity with caution.

Effectively addressing the challenges of AI implementation in public services requires an integrated approach that blends technological advancements with innovative governance strategies. Latupeirissa et al. (2024) assume that technological solutions include improving the quality and diversity of training datasets, developing more accurate and context-sensitive algorithms, and ensuring rigorous testing and validation protocols. These steps help mitigate risks such as algorithmic bias, inaccuracies, and operational failures. From a governance perspective, the responsible integration of AI into public service delivery must align with the core principles of legality, accountability, and transparency (Henman, 2020). Legal compliance ensures AI applications respect citizens' rights and existing legislation, while accountability mechanisms are necessary to identify who is responsible when AI systems cause harm or malfunction. Transparent systems help build public trust, as citizens are more likely to support technologies they understand and can scrutinize.

A key area in this governance-technology nexus is the management of big data. As highlighted by Yukhno (2024), efficient real-time oversight of technological operations through big data tools is essential for improving service delivery outcomes. Big data allows for better decision-making, personalized services, and predictive capabilities that enable public institutions to anticipate and respond more efficiently to citizen needs. In large urban centers, digital transformation holds tremendous potential to deliver citizen-centric services that are accessible, efficient, and tailored to individual users. According to Debeljak and Dečman (2023), these initiatives not only improve the

quality of life but also foster a more favorable environment for business and innovation. Shifting from traditional bureaucratic models to citizen-focused digital frameworks enhances the user experience and makes public services more adaptive and inclusive (Saxena, Muzellec, & McDonagh, 2022).

However, this shift requires more than technological deployment. It necessitates comprehensive planning, strategic vision, and cross-sector collaboration. Governments must harness technological innovation to optimize administrative functions while ensuring that AI and other digital tools are ethically governed and effectively regulated (Aminah & Saksono, 2021). Additionally, as Filgueiras, Flávio, and Palotti (2019) point out, the transformative potential of e-government and AI must be continually refined to address evolving public sector challenges. One essential technological strategy is improving the diversity and quality of AI training data. Representative data sets are crucial in minimizing algorithmic bias and ensuring fairness across different population groups. Additionally, ongoing development of AI algorithms, coupled with robust validation processes, ensures that these systems are reliable, adaptable, and aligned with public sector values.

In parallel, governance frameworks must be reinforced to oversee AI implementation ethically. This involves defining roles and responsibilities, ensuring transparency in decision-making, and creating redress mechanisms for when systems fail. Public administrators should also be trained in both digital competencies and ethical considerations, enabling them to manage and monitor AI systems responsibly. Big data governance continues to be a central concern in the digital transformation of public administration. Real-time data management not only streamlines internal processes but also allows governments to be more agile and responsive. It enables data-driven decisions, early identification of service gaps, and targeted policy interventions. As Yukhno (2024) argues, a unified, data-centered digital ecosystem is crucial for enhancing the efficiency and accountability of public administration in the digital age.

Moreover, large-scale digital transformation, especially in smart cities, presents an opportunity to redefine the relationship between citizens and the state. When implemented effectively, digital initiatives can simplify access to services, reduce administrative burdens, and enhance public trust in institutions. However, this transformation must be guided by ethical principles and grounded in transparent governance to avoid reinforcing inequalities or creating new forms of exclusion. Ultimately, the path to successful AI implementation and digital transformation in public service delivery is multifaceted. Governments must address both the technical and institutional dimensions of innovation. This includes building strong ICT infrastructure, fostering interagency collaboration, promoting a digital-first organizational culture, and maintaining a vigilant approach to ethics and accountability. While the transformative potential of digital technologies is well-recognized, ongoing reflection and refinement are essential to ensure these tools serve the public interest and enhance the effectiveness, fairness, and inclusivity of public services. A central pillar of this transformation is

e-government, which fosters improved interactions between governments and citizens. By digitizing administrative processes and service delivery, e-government enhances accessibility, promotes inclusivity, and contributes to economic growth and sustainable development (Goloshchapova, Yamashev, Skornichenko, & Strielkowski, 2023). These digital models allow for quicker service response times, more transparent decision-making, and increased public participation.

Conclusion and Recommendations

Digital transformation is essential for improving local government performance and public service delivery. Emerging technologies like artificial intelligence (AI) and big data are driving this shift, offering the potential for smarter governance and more personalized services. However, these benefits come with ethical risks, including data bias, transparency issues, and threats to individual autonomy. Therefore, implementing a strong ethical framework is essential to mitigate potential harms. Drawing from both primary field data and scholarly literature, it becomes evident that while the integration of digital technologies into public administration brings numerous benefits—such as enhanced efficiency, improved service accessibility, and better citizen engagement—significant gaps and challenges remain. The study's findings highlight a clear disconnect between digital governance implementation and public satisfaction, with almost half (46.67%) of respondents rating the effectiveness of e-governance services as poor and only a small fraction (15.56%) expressing high satisfaction. Similarly, data on client readiness reveal that 36.67% of users find e-governance insufficient in supporting their engagement, underlining the need for a more inclusive and responsive approach to digital service design.

Despite these challenges, the potential of digital transformation in the public sector remains strong. As noted by scholars such as Alvarenga et al. (2020) and Debeljak & Dečman (2023), digital tools—when properly implemented—streamline administrative processes, eliminate inefficiencies, and deliver services that are more tailored to citizens' needs. This citizen-centric approach is key to rebuilding public trust and enhancing the quality of governance. Moreover, as Wang and Ma (2022) demonstrate, public satisfaction increases when citizens perceive digital services as functional, transparent, and accessible. However, these technologies also raise ethical concerns around transparency, fairness, and privacy. Scholars like Androniceanu (2023) and Henman (2020) emphasize the need for comprehensive regulatory frameworks to ensure the responsible use of AI and protect individual rights. Local governments must therefore balance innovation with accountability by developing clear data governance policies and safeguarding digital equity.

In addition, the success of digital transformation efforts depends on factors such as institutional capacity, municipal size, leadership quality, and cross-sector collaboration. Research by Debeljak and Dečman (2023) and Filgueiras et al. (2019) underscores the importance of digital maturity, participatory governance, and knowledge sharing across public institutions. These insights point toward a holistic, inclusive approach to digital governance—one

that actively engages citizens, leverages institutional knowledge, and adapts strategies to local contexts. In conclusion, while the path toward effective digital governance in public service delivery is complex and multi-faceted, it offers substantial opportunities for transformative change. Governments must prioritize user-friendly design, digital inclusion, ethical innovation, and collaborative governance to ensure that digital transformation truly serves the public interest and enhances democratic accountability. In the case of Nepal, digital transformation faces several challenges, including low confidence in service coverage and reliability, particularly in underserved regions. Clarity and accessibility of guidelines are limited, possibly due to language barriers. However, trust in system stability remains low, and highlights the need for technical improvements, user testing, and responsive feedback mechanisms.

Recommendations

1. Enhance digital literacy programs, especially in rural areas.
2. Simplify and localize service guidelines to improve comprehension.
3. Invest in infrastructure and service reliability to boost service coverage, service effectiveness, and service performance to enhance citizens' satisfaction.
4. Regularly collect user feedback to fine-tune performance and interface.

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