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Gender-Responsive Public Services in Digitally Transforming Societies

Dr. Sophia Williams

Associate Professor, University of Amsterdam, Netherlands

Abstract

Digital transformation is altering how governments identify citizens, distribute benefits, process applications, communicate decisions, collect data, and respond to public-service needs. Although digitization can make services faster and more convenient, technological efficiency does not automatically produce gender equality. Unequal access to devices, connectivity, digital skills, identification credentials, financial resources, privacy, mobility, time, and decision-making power can influence whether different groups benefit equally from digital public services. This study develops a gender-responsive framework for evaluating public-service delivery in digitally transforming societies. Because no primary field dataset was supplied, the study adopts a simulation-based comparative design and does not present synthetic values as observed empirical findings. Five dimensions are examined: access and affordability, usability and assisted access, safety and privacy, co-design and citizen voice, and grievance responsiveness.

A conventional digital-service model is compared with a gender-responsive model incorporating multichannel access, user assistance, inclusive design, privacy safeguards, gender-disaggregated monitoring, participatory service development, and accessible grievance mechanisms. The simulated overall inclusion-readiness score increases from 52.4 to 83.2 on a 100-point scale. The largest modeled improvement occurs in co-design and citizen voice, followed by grievance responsiveness and safety and privacy. These values are illustrative rather than causal estimates.

The analysis indicates that gender-responsive digital governance requires more than closing connectivity gaps. Public institutions need to examine how social roles, economic inequalities, safety concerns, accessibility barriers, institutional procedures, and technological design interact throughout the complete service journey. The study concludes that digital transformation can support more equitable public services when gender responsiveness is integrated into governance, service design, data practices, implementation, and accountability from the outset rather than added after digital systems are deployed.

Keywords: gender-responsive public services; digital transformation; digital government; gender digital divide; public administration; digital inclusion; public-service delivery; digital public infrastructure

1. Introduction

Governments throughout the world are increasingly using digital technologies to redesign public administration and service delivery. Digital identification systems, online portals, mobile applications, interoperable databases, automated eligibility systems, electronic payments, cloud platforms, and data-

driven decision tools can reduce administrative delays and make some public interactions more convenient. The OECD emphasizes that mature digital government requires more than putting existing procedures online; it involves organizational culture, institutional capabilities, governance, integration, and user-centered service design. Digital transformation therefore represents a restructuring of how citizens interact with the state rather than a simple substitution of paper with electronic systems.

The distribution of these benefits, however, is not automatically equal. Gender inequalities can influence digital access, skills, confidence, affordability, autonomy over devices, exposure to online harm, and the ability to use digital systems independently. The OECD notes that digital transformation can create new opportunities for women and girls while existing discrimination, social norms, and unequal educational opportunities continue to shape their participation in increasingly digital economies and societies. These inequalities may become particularly significant where essential public benefits, health services, social protection, documentation, education, employment services, or financial transfers increasingly depend on successful digital interaction.

Gender-responsive public services address this challenge by asking not merely whether a service is technically available but whether people with different social circumstances can use it safely, affordably, autonomously, and effectively. The concept extends beyond identical treatment. A nominally uniform digital procedure can generate unequal outcomes when users enter the system with unequal resources, responsibilities, literacy, mobility, income, access to identification, or control over technology. Evidence from rural India, for example, shows that user-assisted digital-government kiosks can improve perceived usefulness and ease of use for women where direct interaction with digital systems may otherwise create barriers. Soni and Mitchell's research illustrates why assisted access can remain valuable even within an increasingly digital public administration.

Recent international policy work has increasingly brought gender considerations into discussions of digital public infrastructure and public-sector transformation. UN Women highlights the potential of gender-inclusive digital public infrastructure to improve access to services while warning implicitly through its gender-intentional approach that inclusion cannot be assumed from infrastructure deployment alone. The World Bank similarly treats women's inclusion as an explicit dimension of its global digital public infrastructure agenda. UNDP digital standards recommend intentionally addressing digital divides and co-creating digital solutions with affected communities.

2. Objectives of the Study

2.1 To Examine Gendered Barriers in Digital Public-Service Delivery

The first objective is to identify how digital transformation can interact with pre-existing inequalities affecting access to public services. Particular attention is given to connectivity, device ownership, affordability, digital competence, privacy, safety, time constraints, physical accessibility, caregiving responsibilities, assisted access, and institutional responsiveness.

2.2 To Develop a Gender-Responsive Service Evaluation Framework

The second objective is to develop an integrated framework for evaluating whether digitally delivered public services respond effectively to different user circumstances. The proposed framework evaluates

five dimensions: access and affordability, usability and assistance, safety and privacy, co-design and voice, and grievance responsiveness.

2.3 To Compare Conventional and Gender-Responsive Digital-Service Models

The third objective is to use transparent simulation to illustrate how deliberate gender-responsive design interventions might alter the inclusion-readiness profile of a digital public service. The comparison is intended to generate propositions for subsequent empirical validation rather than to establish statistically verified causal effects.

3. Review of Literature

3.1 Digital Transformation, Inclusion, and the Gender Digital Divide

The movement toward digital government has often been justified through efficiency, convenience, transparency, reduced transaction costs, and integrated service delivery. Welby and Tan conceptualize successful digital public-service transformation as a holistic process built around user needs, organizational capabilities, integration, trust, and inclusive service delivery rather than technology deployment alone.

This distinction is essential because digital availability does not necessarily equal meaningful accessibility. Digital exclusion can emerge from inadequate infrastructure, unaffordable connectivity, insufficient skills, inaccessible interfaces, authentication difficulties, or lack of appropriate devices. OECD work on digital divides emphasizes that effective participation depends not simply on being connected but also on possessing the ability and resources necessary to use digital services advantageously.

Gender adds an additional layer to these inequalities. Digital opportunities are shaped by educational access, household resources, employment structures, social norms, safety conditions, and control over technology. OECD analysis notes that digital transformation may simultaneously generate opportunities and expose women to new forms of technology-facilitated harm. Consequently, a public service can be technically modern while reproducing inequalities already present in the offline environment.

Soni and Mitchell's study of women and digital government in rural India provides particularly relevant empirical evidence. Their research examined user-assisted e-government kiosks and found that assisted access contributed positively to women's perceptions of ease of use and usefulness. Their findings challenge the assumption that digital government should always require independent direct interaction with a website or application. In underserved settings, human assistance can be part of inclusive digital design rather than evidence of incomplete digitization.

3.2 From Gender-Neutral to Gender-Responsive Service Design

Gender-neutral design typically assumes that one standardized service journey will operate similarly for all citizens. Gender-responsive design begins from a different proposition: equal public-service outcomes may require institutions to identify and respond to different patterns of need, risk, access, and constraint.

UN Women has long linked gender-responsive governance with public-sector reform and equitable service provision. More recent work on digital public infrastructure further extends this concern into digital identification, payment, and data systems. The emphasis on intentional gender inclusion is important because large-scale digital systems can influence access to numerous downstream services simultaneously.

A gender-responsive service must therefore consider the entire user journey. Registration may require identification documents that some individuals have difficulty obtaining. Authentication may depend on personal device ownership or continuous access to a particular phone number. Benefits may be transferred digitally but remain difficult to control independently where financial autonomy is constrained. A healthcare portal may exist while privacy concerns prevent safe use from a shared device. A complaint system may technically operate online while users lack confidence that complaints can be filed confidentially.

UNDP's strategic approach to inclusive digitalization stresses user-centered design, co-creation with women and girls, stakeholder mapping, iterative testing, and the use of technology to improve access to government services and support systems. These principles suggest that gender responsiveness must be embedded during the design process rather than assessed only after implementation.

3.3 Institutional Capacity, Safety, and Research Gap

Gender-responsive digital services depend not only on citizen capabilities but also on institutional capacity. Public agencies require staff who understand inclusive service design, accessible communication, data protection, gender analysis, digital exclusion, grievance handling, and ethical use of automated decision systems.

Shava and Muringa's 2025 review of women's digital empowerment in the South African public sector identified barriers involving technical skills, funding, institutional resistance, and data-related marginalization. Their analysis emphasizes that digital inclusion requires coordinated government action and collaboration with other stakeholders rather than isolated technology programs.

Safety and privacy are particularly important. Digitally delivered public services can involve sensitive information concerning health, income, family status, disability, identity, social protection, or experiences of violence. If a service assumes that every applicant controls a private device, email address, payment account, or telephone number, it may overlook users whose digital interactions are monitored or shared within households. Gender-responsive design therefore requires privacy-aware communication, data minimization, secure authentication choices, and alternatives where digital channels create personal risk.

The literature provides valuable work on digital government, gender digital divides, women's empowerment, public-sector reform, and digital public infrastructure. A remaining gap concerns the integration of these fields into a concise service-level evaluation structure capable of assessing how gender responsiveness operates throughout the complete digital public-service journey. This study addresses that gap through a five-dimensional analytical framework.

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4. Research Methodology

4.1 Research Design

The study employs a simulation-based comparative analytical design. It does not claim to represent a completed survey, experiment, administrative dataset, or government evaluation. Simulation was selected because no primary empirical dataset was supplied, and manufacturing respondents, statistical significance levels, or measured policy effects would be academically inappropriate.

The analytical comparison involves two conceptual service-delivery models.

The conventional digital-service model represents a system in which services are digitized principally to improve administrative efficiency, speed, standardization, and online availability.

The gender-responsive digital-service model represents a system in which digitization is accompanied by deliberate measures addressing unequal access, usability, assisted service channels, affordability, privacy, safety, co-design, grievance mechanisms, and gender-sensitive monitoring.

The analysis is sector-neutral so that the framework may later be adapted to services such as social protection, public healthcare, employment support, licensing, civil registration, education, municipal services, and digital payments.

4.2 Analytical Dimensions and Proposed Measurement Instrument

Five dimensions were derived from the literature and contemporary policy frameworks. These dimensions represent different stages in a user's interaction with a public service.

Table 1: Proposed Gender-Responsive Digital Public-Service Assessment Instrument

Item	Proposed Assessment Statement	Analytical Dimension
Q1	Users with different income, connectivity, device-access, disability, rurality, and household circumstances can access the service at an affordable cost.	Access and affordability
Q2	The service is understandable and usable, and appropriate human or assisted-access options are available when independent digital use is difficult.	Usability and assistance
Q3	Personal information, identity credentials, communications, and service interactions can be managed safely and with adequate privacy protection.	Safety and privacy
Q4	Women and other affected user groups have meaningful opportunities to influence service design, testing, evaluation, and improvement.	Co-design and citizen voice
Q5	Users can obtain help, challenge errors, report exclusion, and receive understandable resolution through accessible grievance channels.	Grievance responsiveness

Note: The instrument is proposed for future empirical validation. It was not administered to human participants in the present study.

For future research, these items may be expanded into multi-item constructs using Likert-type measures. Reliability analysis, exploratory and confirmatory factor analysis, measurement invariance testing, and subgroup comparisons could then determine whether the framework performs consistently across different demographic and institutional contexts.

4.3 Simulation Procedure and Research Ethics

Each dimension was assigned an illustrative score between 0 and 100 for the conventional model and the gender-responsive model. Higher scores represent stronger inclusion readiness.

The conventional scores were set at moderate levels to represent digital systems that provide meaningful technological access but have not systematically incorporated gender-responsive mechanisms. The alternative model applies improvements reflecting multichannel delivery, user assistance, stronger privacy arrangements, participatory design, and accessible complaint mechanisms.

No inferential statistical tests were used. Artificial significance values would create a misleading impression that simulated observations were collected from independent participants. The analysis is therefore descriptive.

No human subjects, identifiable personal information, or confidential administrative records were used. Institutional ethical approval was consequently not required for this methodological simulation. Any future study involving surveys, interviews, usage records, biometric information, or service-user data should obtain appropriate ethics approval and establish robust data-protection procedures.

5. Analysis

5.1 Comparative Inclusion-Readiness Results

The simulated comparison indicates a substantial difference between a conventional digital-service model and a gender-responsive model.

Table 2: Simulated Gender-Responsiveness Scores for Digital Public Services

Dimension	Conventional Digital-Service Model	Gender-Responsive Digital-Service Model	Illustrative Improvement
Access and affordability	61	84	+23
Usability and assistance	57	82	+25
Safety and privacy	52	86	+34
Co-design and	43	81	+38

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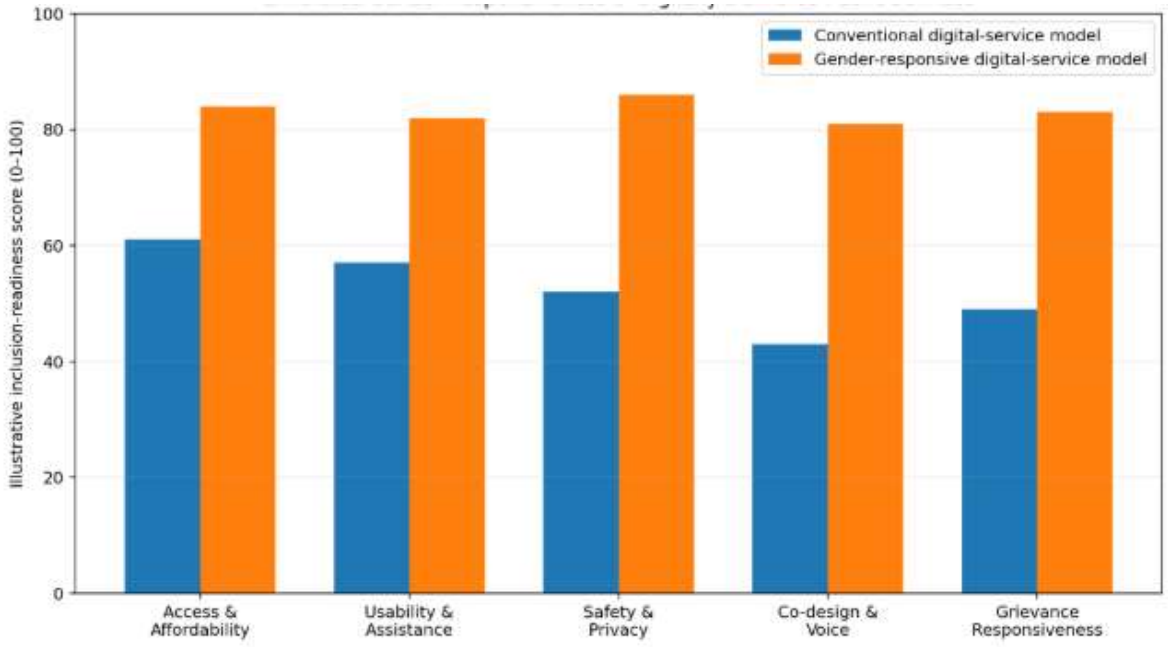
Dimension	Conventional Digital-Service Model	Gender-Responsive Digital-Service Model	Illustrative Improvement
citizen voice			
Grievance responsiveness	49	83	+34
Overall Mean	**52.4**	**83.2**	**+30.8**

Safety and privacy and grievance responsiveness each show a modeled improvement of 34 points. These dimensions are important because inclusion is incomplete when users can technically enter a service but cannot interact safely or correct administrative errors.

5.2 Graphical Analysis

Graph 1: Simulated Gender-Responsiveness of Digitally Delivered Public Services



The graph illustrates improvement across all five dimensions rather than concentrating benefits in a single area. This pattern is important conceptually because closing the connectivity gap alone does not necessarily resolve usability, privacy, participation, or accountability problems.

For example, a citizen may possess internet connectivity but still require assistance with a complicated application. Another user may understand the platform but avoid submitting sensitive information because a mobile device is shared. A third may successfully submit an application yet lack any accessible procedure for challenging an automated rejection.

Gender-responsive transformation must therefore evaluate the complete service journey rather than measuring success only through the number of services placed online.

5.3 Interpretation of the Simulated Pattern

The access and affordability score rises from 61 to 84 in the simulation. This represents measures such as low-bandwidth design, mobile compatibility, assisted service centers, affordable authentication procedures, accessible interfaces, language options, and preservation of appropriate non-digital channels.

The usability and assistance dimension increases from 57 to 82. This improvement aligns with evidence from Soni and Mitchell showing that user-assisted kiosks can improve the experience of women using digital government in rural settings. Their study demonstrates that human assistance should not necessarily disappear as government becomes more digital; instead, it can operate as an inclusion mechanism.

Safety and privacy increase from 52 to 86. The larger improvement reflects the importance of designing services around real household and social conditions rather than assuming private device ownership, unrestricted mobility, or individual control over digital credentials. OECD analysis of gender and digital transformation also recognizes that digital environments may expose women and girls to technology-facilitated harms, reinforcing the need to integrate safety into digital-policy design.

Co-design and citizen voice increase from 43 to 81. UNDP guidance supports co-creation and iterative testing with affected groups as part of inclusive digitalization. Participatory design can reveal barriers that technical teams may not identify through administrative data alone.

Finally, grievance responsiveness increases from 49 to 83. A rights-oriented digital-service system requires citizens to understand decisions, report difficulties, request assistance, challenge errors, and seek human review where appropriate. Digital transformation should therefore strengthen accountability rather than make administrative decisions more difficult to contest.

6. Discussion

6.1 Digital by Default Should Not Become Digital Only

One of the most significant implications concerns the distinction between digital by default and digital only. Moving routine transactions online can reduce travel, waiting times, and administrative burdens for many citizens. Yet mandatory digital-only interaction can create exclusion where users face weak connectivity, low literacy, disability-related barriers, limited digital autonomy, or lack of suitable devices.

The experience of assisted digital-government services in rural India illustrates that physical or human support channels can complement digital transformation rather than contradict it. Soni and Mitchell found that user-assisted kiosks made digital government more useful and easier to navigate for women in underserved settings.

A gender-responsive public administration should consequently provide proportionate alternatives. These may include assisted digital centers, telephone support, community access points, trusted intermediaries, accessible physical counters, or appropriately designed offline procedures. The objective is not to preserve inefficient bureaucracy but to ensure that the move toward digital administration does not convert technological disadvantage into loss of public-service entitlement.

6.2 Gender Responsiveness Requires Institutional Change

A second implication is that gender-responsive service delivery cannot be delegated solely to software developers. Digital interfaces are only one component of the administrative system.

Decisions concerning eligibility rules, identity verification, data-sharing, payment channels, documentation requirements, service hours, language, complaint resolution, procurement, staffing, and performance indicators all influence inclusion. A visually accessible application cannot compensate for a policy requiring credentials that disadvantaged users cannot obtain.

OECD digital-government principles likewise emphasize organizational culture, governance, skills, resources, leadership, and institutional coordination.

Shava and Muringa's review of South Africa further shows how limited digital skills, funding constraints, institutional resistance, and insufficient support can affect women's participation in public-sector digital transformation. Their analysis strengthens the argument that institutional capacity must accompany technological modernization.

Gender-responsive transformation therefore requires cross-functional collaboration among public administrators, gender specialists, service designers, cybersecurity experts, data-protection officers, accessibility professionals, frontline staff, civil-society organizations, and service users.

6.3 Data Governance, Accountability, and Policy Implications

Digital public services generate large quantities of administrative data. Such data can improve monitoring, identify service gaps, support resource allocation, and reveal differences in service use. Nevertheless, data systems can also reproduce existing blind spots when relevant characteristics are not collected, data quality is poor, or excluded populations leave little digital trace.

Gender-disaggregated monitoring is therefore valuable, but it should be combined with privacy safeguards and contextual interpretation. Lower digital-service usage by a group should not automatically be interpreted as lower need. It may indicate weaker access, distrust, inadequate information, safety concerns, or an unsuitable service channel.

The increasing significance of digital public infrastructure makes these concerns particularly important. UN Women and the World Bank have both emphasized intentional gender inclusion within contemporary digital infrastructure agendas.

Governments should consequently evaluate digital services against outcomes rather than digitization outputs alone. The number of online services, downloads, digital transactions, or registered accounts reveals little about whether services are equitably usable.

More informative indicators would examine successful completion rates by relevant demographic groups, abandonment rates, frequency of assisted access, complaint outcomes, service-denial patterns, affordability, user-reported safety, accessibility, time saved, and whether digital delivery improves substantive access to entitlements.

The present study nevertheless has limitations. The quantitative values are simulated and should not be used as empirical estimates. Gender inequalities differ substantially across countries, age groups, income levels, rural and urban environments, disability status, education levels, household arrangements, and service sectors. The proposed dimensions therefore require empirical validation before they are used as a standardized assessment instrument.

Future research should test the framework using real service-user surveys, administrative process data, interviews, usability studies, gender audits, and comparative case studies. Longitudinal designs could determine whether gender-responsive redesign reduces service abandonment, increases successful benefit receipt, improves satisfaction, or strengthens institutional trust.

7. Conclusion

Digital transformation is reshaping the relationship between citizens and public institutions. It can reduce transaction costs, accelerate administrative processes, expand service reach, and create more integrated public systems. These advantages, however, should not be confused with automatic social inclusion.

Gender-responsive public services recognize that users interact with digital government from unequal social and economic positions. Differences in income, device access, connectivity, skills, safety, privacy, caregiving responsibilities, mobility, disability, documentation, and institutional trust can affect whether digital transformation expands or restricts effective access.

The present study proposed a five-dimensional framework comprising access and affordability, usability and assistance, safety and privacy, co-design and citizen voice, and grievance responsiveness. The simulation showed an illustrative increase in overall inclusion readiness from 52.4 under a conventional digital-service model to 83.2 under a gender-responsive model. These figures are conceptual rather than empirical, but they demonstrate how policy evaluation can move beyond simple measures of online availability.

The study further shows that inclusive digital transformation should preserve appropriate assisted and alternative channels. Human support remains important where digital literacy, autonomy, accessibility, or infrastructure is uneven. Gender-responsive digitalization is therefore not synonymous with forcing every user toward independent online interaction.

Public institutions should also incorporate gender analysis before systems are procured or developed. Privacy, accessibility, co-design, grievance mechanisms, inclusive authentication, data governance, and gender-sensitive monitoring should be treated as core service requirements rather than supplementary features.

Ultimately, the success of digitally transforming public services should be judged not by how much technology government deploys but by whether people can obtain public services equitably, safely, independently where possible, with assistance where necessary, and with meaningful opportunities to question administrative decisions. Digital transformation becomes socially valuable when technological modernization and public-sector innovation are accompanied by institutional accountability and deliberate inclusion.

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