



Digital Governance and Rural Service Delivery under Pradhan Mantri Awaas Yojana–Gramin (PMAY-G): An Assessment of Implementation in Odisha

Debakanta Nayak¹

Abstract

Housing constitutes one of the fundamental determinants of human well-being and socio-economic development. In rural India, inadequate housing has historically been associated with poverty, social exclusion, and vulnerability to environmental hazards. Recognizing the need for inclusive rural housing, the Government of India launched the Pradhan Mantri Awaas Yojana–Gramin (PMAY-G) in 2016 with the objective of providing pucca houses with basic amenities to all eligible rural households. Unlike earlier rural housing programmes, PMAY-G incorporates a technology-driven governance framework emphasizing transparency, accountability, efficiency, and citizen-centric service delivery. The scheme employs digital platforms such as AwaasSoft, AwaasApp, Direct Benefit Transfer (DBT), and geo-tagging technologies to streamline implementation and minimize leakages.

This paper examines the governance architecture and service delivery mechanisms of PMAY-G in the state of Odisha, which has emerged as one of the leading states in rural housing implementation. The study adopts a qualitative and analytical approach based on secondary data drawn from government reports, policy documents, academic literature, and programme statistics. It analyzes how digital governance tools have transformed beneficiary identification, fund disbursement, monitoring, and grievance redressal. The paper further evaluates the achievements of PMAY-G in improving housing access and strengthening rural welfare outcomes while identifying persistent challenges such as exclusion errors, land constraints, delays in construction, and institutional capacity limitations.

The study argues that PMAY-G represents a significant shift from welfare-oriented housing provision toward governance-based service delivery. Odisha's experience demonstrates that digital technologies can substantially enhance programme effectiveness; however, sustained success depends upon local institutional capacity, social accountability mechanisms, and continuous policy innovation. The findings contribute to broader debates on e-governance, public service delivery, and rural development in India.

¹ Lecturer in Political Science, Mandosil Degree College, Mandosil



Keywords: PMAY-G, Digital Governance, Service Delivery, Rural Housing, Odisha, E-Governance, Public Administration, Rural Development.

1. Introduction

Housing is widely recognized as a basic human necessity and an important indicator of socio-economic development. Beyond providing physical shelter, adequate housing contributes to health, education, security, dignity, and overall quality of life. In developing countries, housing policies often serve as instruments for poverty alleviation, social inclusion, and rural transformation. In India, despite sustained economic growth, rural housing deprivation has remained a major developmental challenge. Millions of households have historically lived in kutchha or dilapidated structures lacking basic amenities and resilience against natural disasters.

Successive governments have introduced several housing schemes to address rural housing shortages. Programmes such as the Rural Housing Scheme (1957), Indira Awaas Yojana (IAY) launched in 1985, and subsequent interventions attempted to provide financial support for housing construction among economically weaker sections. However, these initiatives faced multiple challenges, including inadequate targeting, leakages, corruption, delays in fund disbursement, and weak monitoring mechanisms. Consequently, concerns regarding transparency, accountability, and effectiveness became central to policy debates on rural housing governance.

To overcome these shortcomings, the Government of India launched the Pradhan Mantri Awaas Yojana–Gramin (PMAY-G) on 20 November 2016. The programme was designed as a comprehensive rural housing mission aimed at providing pucca houses with basic amenities to all eligible rural households. PMAY-G differs from earlier housing schemes not only in terms of increased financial assistance but also through its adoption of a technology-enabled governance architecture. The scheme utilizes socio-economic data for beneficiary selection, digital fund transfers, mobile-based monitoring systems, geo-tagging of houses, and integrated management information systems to ensure transparency and efficiency.

The implementation framework of PMAY-G reflects broader transformations in public administration associated with digital governance. Digital governance refers to the use of information and communication technologies (ICTs) to improve governmental processes, service delivery, transparency, accountability, and citizen participation. Governments across the world increasingly employ digital technologies to reduce administrative inefficiencies, improve monitoring, and enhance public trust. In India, digital governance



has become a key component of welfare administration, particularly through initiatives such as Digital India, Aadhaar-enabled service delivery, and direct benefit transfer mechanisms.

Within this broader context, PMAY-G represents one of the most extensive applications of digital governance in rural development administration. The scheme integrates technology at multiple stages of implementation. Beneficiary selection is based on objective criteria derived from the Socio-Economic and Caste Census (SECC) data. Financial assistance is transferred directly into beneficiaries' bank accounts through the Direct Benefit Transfer system. Construction progress is monitored through geo-tagged photographs uploaded via mobile applications, while programme management is coordinated through the AwaasSoft platform. These innovations aim to reduce discretion, minimize corruption, and improve service delivery outcomes.

Odisha provides a particularly significant case for examining the governance dimensions of PMAY-G. The state has historically faced substantial housing deficits due to widespread rural poverty, frequent natural disasters, and socio-economic vulnerabilities among tribal and marginalized communities. Cyclones, floods, and other climatic events have repeatedly exposed the inadequacy of rural housing infrastructure, highlighting the importance of durable and disaster-resilient housing solutions. Consequently, housing has remained a major priority within Odisha's rural development strategy.

The state government has actively collaborated with the Union Government in implementing PMAY-G and has introduced several administrative innovations to strengthen programme delivery. Odisha has consistently ranked among the leading states in terms of housing completion rates and beneficiary coverage. The adoption of digital monitoring systems, convergence with other welfare programmes, and emphasis on transparency have contributed significantly to implementation outcomes. At the same time, challenges relating to beneficiary exclusion, landlessness, delayed construction, and institutional capacity continue to affect programme effectiveness.

The study of PMAY-G in Odisha is therefore important for several reasons. First, it provides insights into the relationship between digital governance and public service delivery in a developing-country context. Second, it contributes to understanding how technology-driven welfare programmes function at the grassroots level. Third, it helps evaluate whether digital innovations can address long-standing governance challenges in rural development administration. Finally, the lessons derived from Odisha's experience may inform future policy reforms aimed at improving housing delivery and strengthening state capacity.



Against this backdrop, the present paper examines the governance architecture and service delivery outcomes of PMAY-G in Odisha. It analyzes the role of digital technologies in programme implementation, evaluates their impact on transparency and accountability, and identifies key challenges affecting service delivery. By situating PMAY-G within broader debates on governance and public administration, the paper seeks to contribute to scholarly discussions on the evolving nature of welfare governance in contemporary India.

Research Objectives

1. To examine the governance architecture of PMAY-G in Odisha.
2. To analyze the role of digital governance mechanisms in enhancing service delivery.
3. To assess the effectiveness of beneficiary identification, fund disbursement, and monitoring systems.
4. To identify major implementation challenges affecting programme outcomes.
5. To suggest policy measures for improving governance and service delivery under PMAY-G.

Research Methodology

The study adopts a qualitative and analytical research design based primarily on secondary data. Information has been collected from official reports of the Ministry of Rural Development, Government of India, Odisha Rural Housing Department publications, PMAY-G operational guidelines, annual reports, parliamentary documents, audit reports, and relevant academic literature. Secondary statistical data and policy analyses have been utilized to assess implementation trends and governance outcomes. The study employs descriptive and interpretative methods to analyze the relationship between digital governance mechanisms and rural service delivery.

2. Literature Review and Theoretical Framework

2.1 Literature Review

The relationship between governance and public service delivery has attracted considerable scholarly attention over the past three decades. With the emergence of New Public Management (NPM), Good Governance, and Digital Governance paradigms, governments across the world have increasingly adopted



technology-driven mechanisms to improve efficiency, transparency, accountability, and citizen participation in public programmes (Osborne & Gaebler, 1992; Grindle, 2007). In developing countries, where welfare programmes often suffer from administrative inefficiencies and leakages, digital governance has been viewed as a critical instrument for strengthening service delivery systems (Heeks, 2002).

The concept of governance extends beyond traditional governmental authority and encompasses the processes, institutions, and mechanisms through which public resources are managed and public services are delivered (Rhodes, 1996). According to the World Bank (1992), good governance involves accountability, transparency, participation, responsiveness, and effectiveness in public administration. In the Indian context, governance reforms have increasingly emphasized technology-enabled service delivery as a means of reducing corruption and improving citizen access to welfare benefits (Bhatnagar, 2014).

Scholarly literature on digital governance highlights the transformative role of Information and Communication Technologies (ICTs) in public administration. Heeks (2002) argues that e-governance can improve service delivery by reducing information asymmetries, minimizing bureaucratic discretion, and enhancing monitoring capabilities. Similarly, Bhatnagar (2014) notes that digital governance initiatives in India have contributed to greater transparency and accountability in the implementation of welfare programmes. However, researchers also caution that technological solutions alone cannot address governance deficits unless supported by institutional capacity, political commitment, and citizen engagement (Madon, 2009).

Within the broader domain of rural development, housing is increasingly recognized as a multidimensional component of human welfare. Adequate housing contributes not only to physical security but also to improved health, educational attainment, social status, and economic productivity (UN-Habitat, 2015). Rural housing programmes are therefore viewed as important instruments for poverty reduction and social inclusion. Studies on housing policy suggest that the effectiveness of housing programmes depends significantly on governance arrangements, targeting mechanisms, and implementation capacity (Gilbert, 2004).

India's experience with rural housing programmes has evolved considerably over time. The Indira Awaas Yojana (IAY), introduced in 1985, represented a major intervention aimed at providing housing assistance to rural poor households. While the programme expanded housing access, several evaluations identified significant shortcomings relating to beneficiary selection, fund utilization, construction quality, and monitoring systems (Planning Commission, 2014). The Comptroller and Auditor General (CAG) of India



also highlighted issues such as delayed completion, poor targeting, and inadequate transparency in programme implementation (CAG, 2014).

These shortcomings provided the rationale for the introduction of Pradhan Mantri Awaas Yojana–Gramin (PMAY-G) in 2016. Unlike its predecessor, PMAY-G incorporates a comprehensive governance framework based on digital technologies and evidence-based targeting. Beneficiary selection is derived from the Socio-Economic and Caste Census (SECC) 2011 data, while implementation is supported by integrated digital platforms such as AwaasSoft and AwaasApp (MoRD, 2016). According to the Ministry of Rural Development (2016), these innovations were specifically designed to improve transparency, reduce exclusion and inclusion errors, and enhance monitoring efficiency.

Several recent studies have examined the implementation and outcomes of PMAY-G. Kumar and Singh (2020) argue that the scheme represents a significant shift from subsidy-based housing assistance to a governance-oriented service delivery model. Their analysis highlights the role of geo-tagging, direct benefit transfer, and digital monitoring in improving programme accountability. Similarly, Sahoo (2022) finds that PMAY-G has enhanced transparency in fund disbursement and reduced opportunities for corruption compared to earlier housing schemes.

Research on Direct Benefit Transfer (DBT) systems has also emphasized their contribution to welfare governance. Muralidharan, Niehaus, and Sukhtankar (2016) demonstrate that electronic transfer mechanisms can significantly reduce leakages in welfare programmes by eliminating intermediaries and improving beneficiary verification processes. In the context of PMAY-G, DBT ensures that housing assistance is transferred directly to beneficiaries' bank accounts, thereby strengthening financial accountability and reducing opportunities for rent-seeking behavior.

The role of geo-tagging and mobile-based monitoring systems has received particular attention in studies of PMAY-G. Geo-tagging involves capturing location-specific photographic evidence at different stages of house construction through mobile applications. Scholars argue that this technology has strengthened programme oversight by enabling real-time monitoring and reducing fraudulent reporting (Sharma & Gupta, 2021). The integration of geo-tagged data into centralized management information systems allows administrators to track project progress more effectively than traditional paper-based systems.

Despite these achievements, several studies identify continuing implementation challenges. Saxena and Gupta (2021) observe that digital governance initiatives often encounter obstacles related to digital literacy, internet connectivity, and administrative capacity at the local level. Similar concerns have been raised



regarding PMAY-G implementation in rural areas where beneficiaries may face difficulties in accessing banking services, digital infrastructure, or technical support. Exclusion errors arising from outdated socio-economic data also remain a persistent concern in beneficiary identification processes (Dreze & Khera, 2017).

Odisha has emerged as an important case study within the PMAY-G literature. The state's vulnerability to cyclones, floods, and other natural disasters has made rural housing a critical component of development planning. Studies indicate that Odisha has performed relatively well in terms of housing completion rates and adoption of digital monitoring mechanisms (Mohanty & Behera, 2023). The state government's emphasis on convergence, disaster-resilient construction, and transparent implementation has contributed to positive outcomes in rural housing delivery.

However, researchers also note continuing challenges within Odisha's implementation framework. Landlessness among beneficiaries, difficulties in reaching remote tribal areas, delays in construction due to material shortages, and local-level administrative constraints continue to affect programme effectiveness (Panda, 2022). These findings suggest that while digital governance tools have improved transparency and monitoring, structural socio-economic challenges remain significant determinants of programme outcomes.

Overall, the existing literature suggests that PMAY-G represents a major innovation in rural housing governance. Nevertheless, there remains a need for state-specific analyses that examine how governance mechanisms operate in different administrative and socio-economic contexts. Odisha's experience offers valuable insights into the opportunities and limitations of digital governance in rural service delivery and therefore warrants detailed examination.

2.2 Theoretical Framework

The present study is situated within the theoretical perspectives of Good Governance and Digital Governance.

The Good Governance framework emerged prominently during the 1990s through the work of international organizations such as the World Bank and the United Nations. The framework emphasizes principles including transparency, accountability, participation, responsiveness, effectiveness, equity, and rule of law (World Bank, 1992; UNDP, 1997). According to this perspective, public programmes are more likely to achieve their objectives when governance institutions operate transparently and remain accountable to citizens.



PMAY-G embodies several principles associated with good governance. Beneficiary selection based on objective socio-economic criteria seeks to enhance fairness and reduce political interference. Digital monitoring systems promote transparency by making implementation data publicly accessible. Social audits and grievance redressal mechanisms encourage citizen participation and accountability. Consequently, PMAY-G may be viewed as an institutional effort to operationalize good governance principles within rural housing administration.

The study also draws upon the concept of Digital Governance. Digital governance refers to the use of digital technologies to transform governmental processes, improve public service delivery, and strengthen interactions between citizens and the state (Dunleavy et al., 2006). Unlike traditional bureaucratic systems, digital governance relies on integrated information systems, real-time monitoring, electronic transactions, and data-driven decision-making.

Within PMAY-G, digital governance is reflected through several mechanisms. AwaasSoft functions as an integrated Management Information System (MIS) for programme administration. Direct Benefit Transfer enables electronic transfer of financial assistance. Geo-tagging facilitates real-time monitoring of construction progress, while mobile applications support field-level verification processes. Together, these technologies aim to enhance efficiency, reduce corruption, and improve service delivery outcomes.

The analytical framework adopted in this study therefore examines PMAY-G through the intersection of Good Governance and Digital Governance perspectives. It assesses whether digital technologies have strengthened transparency, accountability, efficiency, and responsiveness in rural housing delivery in Odisha and evaluates the extent to which governance innovations have translated into improved service outcomes for beneficiaries.

3. Governance Architecture of PMAY-G and Institutional Framework in Odisha

3.1 Evolution from Indira Awaas Yojana to PMAY-G

The Pradhan Mantri Awaas Yojana–Gramin (PMAY-G) was launched by the Government of India on 20 November 2016 as a restructured version of the Indira Awaas Yojana (IAY). The redesign was based on recommendations arising from programme evaluations, performance audits, and policy reviews which identified significant weaknesses in the implementation of IAY. These included poor targeting of beneficiaries, inadequate financial assistance, weak monitoring systems, delays in fund release, and limited transparency in programme administration (Planning Commission, 2014; CAG, 2014).

Recognizing these shortcomings, the Ministry of Rural Development (MoRD) introduced PMAY-G with the objective of providing “Housing for All” in rural areas through a more accountable, transparent, and technology-driven governance framework (MoRD, 2016). The programme sought to address not only housing shortages but also broader concerns regarding administrative efficiency and service delivery. Unlike IAY, which primarily functioned as a subsidy-based housing programme, PMAY-G was designed as an integrated governance model incorporating digital technologies, evidence-based beneficiary identification, direct fund transfers, and real-time monitoring mechanisms.

The scheme initially aimed to provide pucca houses with basic amenities to all eligible rural households by 2022. Subsequently, the programme was extended to address remaining housing deficits and achieve universal housing coverage in rural India (Government of India, 2024). The shift from welfare-oriented housing assistance to technology-enabled service delivery reflects broader transformations in India's public administration system, where digital governance increasingly serves as a mechanism for improving programme outcomes.

3.2 Institutional Structure of PMAY-G

The governance architecture of PMAY-G operates through a multi-level institutional framework involving the Union Government, State Governments, District Administrations, and Panchayati Raj Institutions (PRIs).

At the national level, the Ministry of Rural Development is responsible for policy formulation, financial allocation, programme guidelines, monitoring, and evaluation. The Ministry also oversees the development and maintenance of digital platforms such as AwaasSoft and AwaasApp, which form the backbone of programme administration (MoRD, 2016).

At the state level, Rural Development Departments are responsible for implementation, coordination, supervision, and capacity building. State governments monitor progress, ensure timely fund utilization, and facilitate convergence with other welfare programmes. In Odisha, the Rural Housing Department functions as the principal agency responsible for implementing PMAY-G and coordinating activities with district administrations and Panchayati Raj Institutions.

District Collectors play a critical role in programme execution by supervising beneficiary verification, monitoring construction progress, resolving grievances, and ensuring compliance with implementation guidelines. At the grassroots level, Gram Panchayats and Gram Sabhas assist in beneficiary verification,



community participation, and local-level monitoring. This multi-tier institutional arrangement reflects the principle of cooperative governance, where responsibilities are distributed across different administrative levels to ensure effective service delivery.

The governance framework also incorporates social accountability mechanisms through community participation and public disclosure of beneficiary lists. Such measures are intended to reduce opportunities for manipulation and enhance transparency in programme implementation (World Bank, 1992).

3.3 Beneficiary Identification and Targeting Mechanism

One of the most significant innovations introduced under PMAY-G relates to beneficiary selection. Previous housing programmes frequently faced criticism for arbitrary selection procedures and political interference in beneficiary identification (CAG, 2014). To address these concerns, PMAY-G utilizes data from the Socio-Economic and Caste Census (SECC) 2011 to identify eligible households based on objective deprivation indicators.

The selection process follows a structured methodology. Households are ranked according to housing deprivation criteria, including homelessness, kutcha housing conditions, and socio-economic vulnerability. The resulting list is then verified through Gram Sabha consultations before final approval. This process combines data-driven targeting with community validation, thereby seeking to balance administrative objectivity with local participation (MoRD, 2016).

The use of SECC data represents an important governance reform because it reduces administrative discretion and promotes transparency. Beneficiary lists are publicly displayed, allowing citizens to scrutinize selection decisions and raise objections where necessary. Such transparency mechanisms contribute to accountability and help minimize inclusion and exclusion errors.

Nevertheless, scholars have noted certain limitations in the beneficiary identification process. Since the scheme relies substantially on SECC 2011 data, households experiencing socio-economic changes after the census may not be adequately represented. Consequently, some deserving beneficiaries may remain excluded despite meeting eligibility criteria (Dreze & Khera, 2017). These concerns remain relevant in Odisha, particularly in rapidly changing rural environments and disaster-affected regions.

3.4 Digital Governance Mechanisms under PMAY-G

A distinguishing feature of PMAY-G is its extensive reliance on digital governance tools. The programme incorporates technology at every stage of implementation, from beneficiary identification to fund disbursement and monitoring.

AwaasSoft

AwaasSoft serves as the central Management Information System (MIS) of PMAY-G. It functions as an integrated digital platform for planning, beneficiary management, financial tracking, monitoring, and reporting. Through AwaasSoft, administrators can access real-time information regarding sanctioned houses, construction progress, fund releases, and completion rates (MoRD, 2016).

The platform enhances transparency by maintaining comprehensive digital records accessible to multiple levels of administration. It also facilitates evidence-based decision-making by providing accurate and timely programme data. Researchers have argued that integrated MIS platforms significantly improve administrative efficiency by reducing paperwork and strengthening monitoring capacity (Heeks, 2002).

AwaasApp and Geo-Tagging

Another major innovation is the use of AwaasApp for geo-tagged monitoring of housing construction. Field officials capture photographs of houses at different stages of construction, including foundation, plinth, roof level, and completion stage. These photographs are geo-tagged and uploaded to the central database for verification.

Geo-tagging enhances accountability by providing visual evidence of construction progress and reducing opportunities for false reporting. Real-time monitoring enables administrators to identify delays, detect irregularities, and take corrective action when necessary (Sharma & Gupta, 2021). The technology also strengthens public confidence in programme implementation by improving transparency.

Direct Benefit Transfer (DBT)

Financial assistance under PMAY-G is disbursed directly into beneficiaries' bank accounts through the Direct Benefit Transfer system. Funds are released in installments linked to construction milestones verified through geo-tagged evidence.



The adoption of DBT represents a major governance reform because it minimizes intermediary involvement and reduces opportunities for corruption. Studies have shown that direct electronic transfers improve accountability, enhance beneficiary empowerment, and reduce leakages in welfare programmes (Muralidharan, Niehaus, & Sukhtankar, 2016). For rural households, DBT also contributes to financial inclusion by encouraging access to formal banking services.

Public Financial Management System (PFMS)

PMAY-G is integrated with the Public Financial Management System (PFMS), enabling real-time tracking of financial transactions. This integration enhances fiscal transparency and facilitates efficient utilization of public funds. Administrators can monitor fund flows, identify bottlenecks, and ensure timely disbursement of assistance.

Together, AwaasSoft, AwaasApp, DBT, and PFMS constitute a comprehensive digital governance ecosystem designed to improve transparency, accountability, efficiency, and responsiveness in housing delivery.

3.5 PMAY-G Implementation Framework in Odisha

Odisha has emerged as one of the leading states in PMAY-G implementation due to its proactive administrative approach and emphasis on technology-enabled governance. The state has historically faced substantial housing vulnerabilities arising from poverty, tribal marginalization, and recurrent natural disasters, particularly cyclones and floods (Panda, 2022).

To address these challenges, Odisha has adopted a comprehensive implementation strategy combining digital monitoring, convergence with welfare programmes, and strong administrative oversight. District administrations regularly review construction progress, while field-level officials provide technical assistance to beneficiaries. The state has also emphasized disaster-resilient housing designs to enhance resilience against climatic hazards.

An important aspect of Odisha's implementation strategy involves convergence with schemes such as the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Swachh Bharat Mission (Gramin), and rural electrification programmes. Such convergence enables beneficiaries to access complementary services including sanitation facilities, wage support, and electricity connections, thereby improving overall living conditions (Government of Odisha, 2023).



The state has further strengthened monitoring through periodic review meetings, mobile-based inspections, and digital performance tracking. These initiatives have contributed to relatively high housing completion rates compared to several other states. Nevertheless, implementation challenges persist in remote tribal areas, land-constrained regions, and disaster-prone districts where administrative and logistical constraints remain significant.

The governance architecture of PMAY-G in Odisha thus illustrates the growing role of digital technologies in public administration. By integrating technology with decentralized implementation structures, the programme seeks to improve service delivery outcomes while promoting transparency, accountability, and citizen-centric governance.

4. Digital Governance and Service Delivery Outcomes under PMAY-G in Odisha

4.1 Digital Governance as a Tool of Rural Service Delivery

The introduction of PMAY-G marked a significant shift in the governance of rural housing programmes in India. Unlike earlier welfare schemes that relied heavily on manual administration and paper-based processes, PMAY-G integrates digital technologies into almost every stage of programme implementation. This transformation reflects broader trends in public administration where digital governance is increasingly employed to enhance transparency, accountability, efficiency, and citizen-centric service delivery (Dunleavy et al., 2006; Bhatnagar, 2014).

Service delivery refers to the mechanisms through which governments provide public goods and services to citizens. Effective service delivery requires timely provision of benefits, equitable access, administrative efficiency, transparency, and responsiveness to citizen needs (World Bank, 2004). In the context of PMAY-G, service delivery encompasses beneficiary identification, approval of housing assistance, fund disbursement, monitoring of construction, grievance redressal, and convergence with complementary welfare programmes.

Odisha presents an important case for assessing the relationship between digital governance and service delivery because of its substantial rural population, geographical diversity, and vulnerability to natural disasters. The state's experience demonstrates how technological innovations can improve administrative performance while simultaneously revealing the structural challenges that continue to affect welfare delivery.

4.2 Transparency and Accountability in Programme Implementation

Transparency constitutes one of the most important dimensions of good governance. Public programmes often encounter implementation problems when citizens lack access to information regarding beneficiary selection, fund allocation, and programme performance. PMAY-G attempts to address these concerns through a range of digital transparency mechanisms.

The use of AwaasSoft enables real-time public access to information relating to beneficiary status, construction progress, and fund disbursement. Digital records maintained on the platform reduce opportunities for manipulation and create an auditable trail of administrative actions (MoRD, 2016). Unlike earlier housing schemes where records were often maintained manually, PMAY-G provides a centralized and standardized information system that enhances administrative accountability.

The publication of beneficiary lists derived from SECC data further strengthens transparency. Citizens can verify beneficiary details and raise objections through local governance institutions. This public disclosure mechanism reduces discretion in beneficiary selection and contributes to greater fairness in programme implementation (Saxena & Gupta, 2021).

Geo-tagging has emerged as another important accountability tool. Photographic evidence captured at different stages of construction allows administrators to verify actual progress before releasing subsequent installments. By linking financial disbursement to physical verification, the programme minimizes opportunities for fraudulent reporting and misuse of funds. Scholars have observed that geo-tagged monitoring systems improve oversight and reduce information asymmetries between field-level officials and higher administrative authorities (Sharma & Gupta, 2021).

In Odisha, district administrations have actively utilized digital monitoring systems to review progress and identify implementation bottlenecks. Regular monitoring has contributed to improved oversight and greater administrative responsiveness. Nevertheless, transparency gains remain uneven in remote regions where digital infrastructure and administrative capacity are relatively weak.

4.3 Efficiency in Fund Disbursement and Financial Management

One of the major criticisms of earlier rural housing programmes concerned delays and leakages in fund distribution. Beneficiaries frequently encountered difficulties arising from bureaucratic procedures, corruption, and inadequate monitoring of financial transactions (CAG, 2014). PMAY-G addresses these



challenges through the Direct Benefit Transfer (DBT) mechanism and integration with the Public Financial Management System (PFMS).

Under PMAY-G, financial assistance is transferred directly into beneficiaries' bank accounts in multiple installments linked to construction milestones. This arrangement reduces intermediary involvement and minimizes opportunities for rent-seeking behavior. Electronic fund transfers also create a transparent record of transactions that can be monitored at different administrative levels (Muralidharan, Niehaus, & Sukhtankar, 2016).

The integration of PFMS has further strengthened financial accountability by enabling real-time tracking of fund flows. Administrators can monitor expenditure patterns, identify delays, and ensure compliance with financial guidelines. Such systems contribute to more efficient utilization of public resources and reduce administrative costs associated with manual processing.

In Odisha, DBT has played a significant role in improving beneficiary access to financial assistance. Many rural households have received housing installments without the delays that characterized earlier schemes. The programme has also encouraged financial inclusion by increasing the use of formal banking channels among rural populations. However, challenges remain for beneficiaries residing in remote tribal regions where banking infrastructure and digital connectivity are limited. In such areas, accessing financial services can still impose significant costs and delays on beneficiaries.

4.4 Beneficiary-Centric Service Delivery

A central objective of PMAY-G is to improve the quality and accessibility of services delivered to beneficiaries. Traditional welfare programmes often focused primarily on resource allocation, whereas contemporary governance approaches emphasize citizen-centric service delivery and beneficiary empowerment (Osborne & Gaebler, 1992).

The adoption of objective targeting criteria based on SECC data has contributed to a more systematic and transparent beneficiary selection process. By reducing discretionary decision-making, the programme seeks to ensure that housing assistance reaches the most vulnerable households. Gram Sabha verification adds an additional layer of community participation, thereby strengthening the legitimacy of selection decisions (MoRD, 2016).

The beneficiary-centered approach is also reflected in the flexibility granted to households regarding house construction. Rather than relying exclusively on contractor-driven construction models, PMAY-G allows



beneficiaries to participate actively in building their homes. This approach promotes ownership, encourages local innovation, and enhances beneficiary satisfaction.

Several studies suggest that access to permanent housing generates broader socio-economic benefits beyond physical shelter (UN-Habitat, 2015). Improved housing conditions contribute to better health outcomes, increased educational participation, enhanced social status, and greater economic security. In Odisha, beneficiaries have reported improvements in living standards due to access to durable housing structures capable of withstanding adverse climatic conditions (Panda, 2022).

The convergence of PMAY-G with other welfare schemes further strengthens service delivery outcomes. Beneficiaries often receive support through MGNREGS for labor components, sanitation facilities under the Swachh Bharat Mission, and access to electricity through rural electrification programmes. Such convergence creates a more holistic development framework and improves the overall effectiveness of public service delivery.

4.5 Disaster Resilience and Housing Security in Odisha

The significance of PMAY-G in Odisha cannot be fully understood without considering the state's exposure to natural disasters. Odisha experiences recurrent cyclones, floods, and extreme weather events that disproportionately affect rural populations. Housing vulnerability has historically been a major contributor to disaster-related losses and displacement.

PMAY-G has played an important role in strengthening housing resilience by promoting the construction of durable pucca houses. State authorities have encouraged disaster-resistant construction techniques, particularly in cyclone-prone coastal districts. The emphasis on structural quality and resilience reflects a broader shift from merely providing housing units to ensuring long-term housing security.

From a governance perspective, the integration of disaster resilience into housing policy demonstrates the importance of adaptive public administration. Effective service delivery requires not only the provision of immediate benefits but also the capacity to address long-term vulnerabilities. Odisha's implementation of PMAY-G illustrates how welfare programmes can contribute to broader developmental and resilience objectives.

The benefits of resilient housing became particularly evident during subsequent disaster events when many PMAY-G houses demonstrated greater structural stability compared to traditional housing structures. Such



outcomes reinforce the developmental significance of rural housing programmes beyond their immediate welfare functions.

4.6 Social Inclusion and Rural Development Outcomes

PMAY-G also seeks to promote social inclusion by targeting economically and socially marginalized populations. Rural housing deprivation often disproportionately affects Scheduled Castes (SCs), Scheduled Tribes (STs), women-headed households, and other vulnerable groups. By prioritizing deprived households through objective selection criteria, the programme aims to reduce social inequalities and expand access to basic housing infrastructure.

In Odisha, where tribal populations constitute a significant proportion of the rural population, PMAY-G has contributed to extending housing assistance to historically marginalized communities. Improved housing conditions have positive implications for social dignity, community participation, and access to development opportunities. Housing ownership can also enhance household security and strengthen socio-economic resilience.

Women's empowerment represents another important outcome associated with PMAY-G. Houses are often sanctioned in the name of female household members or jointly in the names of spouses. Scholars argue that such arrangements contribute to women's asset ownership and strengthen their position within household decision-making processes (Agarwal, 1994). Although housing ownership alone cannot eliminate gender inequalities, it can contribute to greater economic security and social recognition for women.

The programme's contribution to rural development extends beyond housing construction. Increased demand for building materials, labor, transportation, and local services generates economic activity within rural areas. Consequently, PMAY-G functions not only as a housing programme but also as a catalyst for local economic development.

4.7 Persistent Challenges in Service Delivery

Despite significant achievements, PMAY-G continues to face several implementation challenges that affect service delivery outcomes.

One of the most frequently cited concerns relates to exclusion errors arising from dependence on SECC 2011 data. Socio-economic conditions in rural areas have changed considerably since the census was



conducted, resulting in situations where deserving households remain outside beneficiary lists (Dreze & Khera, 2017). This issue has generated grievances in several regions, including Odisha.

Landlessness presents another major challenge. Some eligible beneficiaries possess no legally recognized land on which to construct houses. Although governments have introduced initiatives to address this issue, land-related constraints continue to delay housing provision for certain households.

Administrative capacity also varies significantly across districts. Remote tribal regions often experience shortages of technical personnel, limited digital infrastructure, and logistical difficulties. Such constraints can affect monitoring effectiveness and delay programme implementation.

Digital governance mechanisms themselves are not immune to challenges. Limited internet connectivity, inadequate digital literacy, and occasional technical failures can hinder the functioning of online systems. Scholars caution that technological solutions should complement rather than replace institutional capacity-building efforts (Madon, 2009).

Finally, inflation in construction material costs can create financial pressures for beneficiaries. Although government assistance has increased over time, some households still encounter difficulties in completing houses within sanctioned budgets. This issue is particularly relevant in geographically remote regions where transportation costs are high.

4.8 Assessment

The evidence suggests that PMAY-G has substantially improved governance and service delivery in Odisha compared to earlier rural housing programmes. Digital technologies have enhanced transparency, accountability, monitoring, and financial management. Beneficiaries have gained improved access to housing assistance, while administrative authorities have benefited from real-time monitoring systems and integrated information platforms.

However, the success of digital governance should not be evaluated solely in technological terms. Effective service delivery depends equally on institutional capacity, local governance structures, social accountability mechanisms, and responsiveness to beneficiary needs. Odisha's experience demonstrates that digital tools can significantly strengthen programme implementation, but their effectiveness ultimately depends on the broader governance environment within which they operate.



The PMAY-G experience therefore highlights both the transformative potential and the practical limitations of digital governance in rural development. While technology has enhanced administrative efficiency and transparency, addressing structural issues such as landlessness, exclusion errors, and regional inequalities remains essential for achieving truly inclusive housing development.

5. Major Findings and Discussion

The analysis of PMAY-G implementation in Odisha reveals that the programme represents a significant transformation in the governance of rural housing delivery. Unlike earlier housing schemes that were often characterized by administrative discretion, weak monitoring mechanisms, and limited accountability, PMAY-G has institutionalized a technology-enabled governance framework that emphasizes transparency, efficiency, and citizen-centric service delivery.

The first major finding of the study is that digital governance mechanisms have substantially improved programme transparency. The integration of AwaasSoft, AwaasApp, geo-tagging, and online beneficiary databases has enabled real-time monitoring and increased public access to information. These innovations have reduced opportunities for manipulation and strengthened administrative accountability. The findings support the arguments of Heeks (2002) and Bhatnagar (2014), who contend that digital technologies can improve governance outcomes by reducing information asymmetries and enhancing monitoring capabilities.

Second, the study finds that Direct Benefit Transfer (DBT) has significantly improved financial transparency and efficiency. By transferring housing assistance directly into beneficiaries' bank accounts, PMAY-G has minimized intermediary involvement and reduced opportunities for corruption. The integration of the Public Financial Management System (PFMS) has further enhanced fiscal accountability through real-time tracking of fund flows. These findings are consistent with the broader literature on digital welfare governance, which identifies electronic transfer systems as effective tools for reducing leakages and improving service delivery (Muralidharan, Niehaus, & Sukhtankar, 2016).

Third, the study demonstrates that PMAY-G has contributed positively to rural welfare and housing security in Odisha. Beneficiaries have gained access to durable housing structures, improved living conditions, and greater resilience against environmental hazards. In a disaster-prone state such as Odisha, the emphasis on disaster-resistant construction has added an important dimension to housing policy by linking welfare delivery with climate resilience and disaster risk reduction.



Fourth, the study highlights the importance of programme convergence in enhancing service delivery outcomes. The integration of PMAY-G with schemes such as MGNREGS, Swachh Bharat Mission (Gramin), and rural electrification programmes has enabled beneficiaries to access multiple welfare benefits simultaneously. This convergence-based approach reflects contemporary governance strategies that seek to address multidimensional aspects of poverty rather than treating housing as an isolated intervention.

Despite these achievements, the study identifies several persistent governance challenges. Dependence on SECC 2011 data continues to create exclusion errors, resulting in the omission of certain deserving households from beneficiary lists. Landlessness remains a significant barrier for eligible beneficiaries who lack legal ownership of land for house construction. Administrative capacity constraints, particularly in remote tribal areas, continue to affect implementation efficiency. Furthermore, digital governance initiatives face limitations arising from inadequate internet connectivity, varying levels of digital literacy, and technological infrastructure gaps.

Overall, the findings suggest that PMAY-G has strengthened governance and service delivery in Odisha, but technological innovations alone cannot fully overcome structural socio-economic constraints. Effective implementation requires continuous institutional strengthening, local participation, and adaptive policy reforms.

6. Policy Recommendations

Based on the findings of the study, several policy measures may be considered to further strengthen governance and service delivery under PMAY-G in Odisha.

6.1 Updating Beneficiary Databases

One of the most pressing challenges relates to the continued reliance on SECC 2011 data for beneficiary identification. Given the substantial socio-economic changes that have occurred over the past decade, periodic updating of beneficiary databases is necessary to minimize exclusion errors. The government should establish a dynamic verification mechanism that allows eligible households to be added through transparent and evidence-based procedures. Such reforms would enhance the inclusiveness and legitimacy of the programme.

6.2 Strengthening Land Allocation Mechanisms

Landlessness remains a major obstacle to achieving universal rural housing coverage. State governments should accelerate land allocation initiatives for housing-deprived households and simplify procedures relating to land ownership verification. Special attention should be given to Scheduled Tribes, marginalized communities, and disaster-affected populations that often face land-related vulnerabilities. Integrating housing programmes with land reform initiatives may significantly improve implementation outcomes.

6.3 Enhancing Digital Infrastructure

The effectiveness of digital governance depends heavily on the availability of reliable technological infrastructure. Expanding internet connectivity, particularly in remote tribal and rural regions, should therefore remain a policy priority. Investments in digital infrastructure would improve the functioning of online monitoring systems, facilitate beneficiary access to information, and strengthen administrative efficiency.

6.4 Capacity Building of Local Institutions

Technology cannot substitute for institutional capacity. Continuous training programmes should be organized for local officials, Panchayati Raj representatives, and field-level functionaries involved in PMAY-G implementation. Capacity-building initiatives should focus on digital literacy, programme management, grievance handling, and technical aspects of housing construction. Strengthening local administrative capacity would improve programme responsiveness and effectiveness.

6.5 Strengthening Social Accountability Mechanisms

While digital monitoring has improved transparency, citizen participation remains equally important for effective governance. Gram Sabhas, social audits, and community monitoring mechanisms should be further strengthened to ensure local accountability. Public disclosure of beneficiary lists, construction progress, and financial information should continue to be promoted. Citizen feedback systems may also be integrated into digital platforms to enhance responsiveness and trust.

6.6 Improving Grievance Redressal Systems

An effective grievance redressal mechanism is essential for citizen-centric service delivery. Beneficiaries should have access to simple, accessible, and time-bound procedures for reporting complaints related to beneficiary selection, fund disbursement, construction quality, and administrative delays. The integration



of digital complaint management systems with local-level grievance forums could significantly improve accountability and citizen satisfaction.

6.7 Promoting Disaster-Resilient Housing

Given Odisha's vulnerability to cyclones, floods, and extreme weather events, greater emphasis should be placed on disaster-resilient housing designs. Technical support, training, and awareness programmes should be provided to beneficiaries to encourage the adoption of resilient construction techniques. Convergence with disaster management authorities can further strengthen the resilience of rural housing infrastructure.

6.8 Strengthening Programme Convergence

The developmental impact of PMAY-G can be enhanced through deeper convergence with other rural development programmes. Housing assistance should be systematically linked with sanitation, drinking water, electrification, livelihood promotion, and social protection schemes. Such integration would contribute to holistic rural development and improve overall quality of life for beneficiaries.

7. Conclusion

Housing is a fundamental component of human development and an essential prerequisite for social and economic well-being. The Pradhan Mantri Awaas Yojana–Gramin (PMAY-G) represents one of the most ambitious rural housing programmes undertaken in independent India and reflects a broader transformation in welfare governance through the adoption of digital technologies. The programme seeks not only to provide housing assistance but also to improve transparency, accountability, efficiency, and citizen-centric service delivery.

This study examined the governance architecture and service delivery outcomes of PMAY-G in Odisha, a state characterized by significant rural housing needs and recurrent environmental vulnerabilities. The analysis demonstrates that PMAY-G has introduced substantial governance innovations through the use of AwaasSoft, AwaasApp, geo-tagging, Direct Benefit Transfer, and integrated financial management systems. These mechanisms have strengthened transparency, improved monitoring, reduced leakages, and enhanced administrative accountability.

The findings indicate that Odisha has utilized these governance tools effectively to improve housing delivery and promote rural welfare. The programme has contributed to better housing conditions, increased disaster resilience, enhanced financial inclusion, and greater access to complementary welfare services



through programme convergence. In this respect, PMAY-G illustrates how digital governance can support more efficient and responsive public service delivery.

However, the study also reveals that governance challenges remain. Exclusion errors arising from outdated beneficiary databases, landlessness among eligible households, infrastructural limitations, and institutional capacity constraints continue to affect programme effectiveness. These challenges highlight the fact that digital technologies are not a substitute for strong institutions and inclusive governance practices. Rather, technology functions most effectively when embedded within supportive administrative structures characterized by accountability, participation, and responsiveness.

From a theoretical perspective, the study reinforces the relevance of Good Governance and Digital Governance frameworks in understanding contemporary welfare administration. The Odisha experience demonstrates that technology-enabled governance can significantly enhance service delivery outcomes when combined with institutional capacity, social accountability, and policy commitment. At the same time, the persistence of structural challenges underscores the need for a balanced approach that integrates technological innovation with broader socio-economic reforms.

In conclusion, PMAY-G represents a notable advancement in the governance of rural housing in India. Odisha's experience offers valuable lessons for policymakers, administrators, and scholars interested in the intersection of digital governance and public service delivery. Future reforms should focus on strengthening inclusiveness, enhancing local institutional capacity, and ensuring that technological innovations remain aligned with the broader objectives of equitable and sustainable rural development.

References

Government and Institutional Sources

1. Bhatnagar, S. (2014). *Public service delivery: Role of information and communication technology in improving governance and development impact*. Asian Development Bank.
2. Comptroller and Auditor General of India. (2014). *Report No. 37 of 2014: Performance Audit of Indira Awaas Yojana*. Government of India.
3. Government of India. Ministry of Rural Development. (2016). *Pradhan Mantri Awaas Yojana–Gramin: Framework for implementation*. Government of India.



4. Government of India. Ministry of Rural Development. (Various years). *Annual Report*. Government of India.
5. Government of Odisha. Rural Housing Department. (Various years). *Annual Administrative Report*. Government of Odisha.
6. Government of Odisha. Rural Housing Department. (Various years). *PMAY-G Progress Reports*. Government of Odisha.
7. NITI Aayog. (2021). *National Multidimensional Poverty Index*. Government of India.
8. United Nations Development Programme. (1997). *Governance for Sustainable Human Development*. UNDP.
9. World Bank. (1992). *Governance and Development*. World Bank.
10. World Bank. (2004). *World Development Report 2004: Making Services Work for Poor People*. World Bank.

Academic Sources

11. Agarwal, B. (1994). *A field of one's own: Gender and land rights in South Asia*. Cambridge University Press.
12. Dreze, J., & Khera, R. (2017). Recent social security initiatives in India. *World Development*, 98, 555–572.
13. Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2006). New public management is dead—Long live digital-era governance. *Journal of Public Administration Research and Theory*, 16(3), 467–494.
14. Gilbert, A. (2004). Helping the poor through housing subsidies: Lessons from Chile, Colombia and South Africa. *Habitat International*, 28(1), 13–40.
15. Grindle, M. (2007). Good enough governance revisited. *Development Policy Review*, 25(5), 553–574.



16. Heeks, R. (2002). E-government in Africa: Promise and practice. *Information Polity*, 7(2–3), 97–114.
17. Madon, S. (2009). E-governance for development: A focus on rural India. Palgrave Macmillan.
18. Muralidharan, K., Niehaus, P., & Sukhtankar, S. (2016). Building state capacity: Evidence from biometric smartcards in India. *American Economic Review*, 106(10), 2895–2929.
19. Osborne, D., & Gaebler, T. (1992). *Reinventing government*. Addison-Wesley.
20. Rhodes, R. A. W. (1996). The new governance: Governing without government. *Political Studies*, 44(4), 652–667.
21. UN-Habitat. (2015). *Habitat III issue paper on housing policies*. United Nations Human Settlements Programme.

Publisher’s Note: *The views and opinions expressed in this article are those of the author(s) and do not necessarily reflect the official policy or position of the publisher or editorial board. The publisher assumes no responsibility for any consequences arising from the use of information contained herein.*

Citation in APA 7th Edition: *Nayak, D. (2026). Digital Governance and Rural Service Delivery under Pradhan Mantri Awaas Yojana–Gramin (PMAY-G): An Assessment of Implementation in Odisha. Lyceum India Journal of Social Sciences, 3(5), 108–132. <https://doi.org/10.5281/zenodo.19691097>*