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Journal of Mathematics Instruction, Social Research and Opinion Vol. 4, No. 4, December 2025, pp. 1501 – 1515 , https://doi.org/10.58421/misro.v4i4.919 ISSN 2962-7842 1501 Journal homepage : https://journal-gehu.com/index.php/misro Implementing Information Technology to Improve Public Service Quality: A Case Study of Loa Ipuh Darat Village, Kutai Kartanegara Juliansyah[1], Saipul[2], Iman Surya[3] 1,2,3Mulawarman University, Indonesia Article Info ABSTRACT Article history: Received 2025-12-08 Revised 2025-12-23 Accepted 2025-12-30 This study examines the implementation of information technology to improve the quality of public services in Loa Ipuh Darat Village by analyzing the effectiveness of the digitalization process using four policy implementation variables proposed by Edwards III: communication, resources, disposition, and bureaucratic structure. In addition, the study explores the supporting and inhibiting factors that influence the implementation of information technology in village-level public services. The objectives of this study are: (1) to describe and analyze the implementation of information technology in public services in Loa Ipuh Darat Village, Tenggarong District, Kutai Kartanegara Regency; and (2) to identify the supporting and inhibiting factors affecting its implementation. This research employed a qualitative descriptive approach. Data were collected through in-depth interviews, direct observation, and documentation. The interviews involved eight informants: the village head, the village secretary, two village administrative staff, one IT operator, two community members as service users, and one sub-district official. The study was conducted over three months, from March to May 2024. Data analysis followed the interactive model developed by Miles, Huberman, and Saldaña, which includes data condensation, data display, and conclusion drawing and verification. The findings indicate that the implementation of information technology in public services has shown mixed results. Communication has been carried out hierarchically and relatively clearly, although continuous technical assistance is still needed. Resources remain the main constraint, particularly limited human resource competence, budget constraints, and inadequate IT facilities. The disposition of both village officials and the community is generally positive and adaptive, but disparities in digital literacy persist. The bureaucratic

structure provides formal regulatory support; however, its effectiveness is limited by rigid administrative procedures and the absence of a specialized IT unit at the village level. Supporting factors include leadership commitment, positive attitudes among village officials, and the availability of initial network infrastructure. In contrast, inhibiting factors include limited technical competence, unstable internet connectivity, dependence on external technicians, and a less responsive bureaucracy. These findings highlight that successful digitalization in public services depends heavily on resource readiness, bureaucratic flexibility, and adequate infrastructure support. Keywords: Information Technology Loa Ipuh Darat Public Services Corresponding Author: Juliansyah Mulawarman University, Indonesia Email: jul.yans@gmail.com

https://doi.org/10.58421/misro.v4i4.919 1502 1. INTRODUCTION The development of information technology in the digital era has transformed public interaction patterns and bureaucratic work systems, making digital transformation a strategic necessity to improve the effectiveness, efficiency, and quality of public services [1]. In response, the Indonesian government launched the 2021–2024 Digital Indonesia Roadmap, which includes 10 priority sectors and 100 initiatives to accelerate national digital transformation and strengthen the electronic-based government system (SPBE) [2]. This policy aligns with Presidential Regulation Number 95 of 2018 concerning SPBE, which emphasizes integrated business processes, service standardization, and bureaucratic accountability to realize transparent and responsive public services [3]. At the regional level, the East Kalimantan Provincial Government has supported digitalization through infrastructure provision and intergovernmental collaboration, including cooperation between the Provincial Communication and Informatics Office and Icon+ in expanding internet access for village and sub-district offices in 2022 [4]. These initiatives were further translated by the Kutai Kartanegara Regency Government through digital innovations such as the “Lobiku” application, SPBE implementation, and policy directions from the Village

Community Empowerment Office to improve village public services [5]. At the local level, Loa Ipuh Darat Village has adopted digital services, including a digital library application and online population administration services through the Kukar Disdukcapil application. Despite these efforts, the implementation of digital public services has not been fully optimized. Nationally, challenges include limited infrastructure, uneven human resource capacity, weak digital literacy, and inconsistent SOP implementation [6]. Regionally, Kutai Kartanegara faces unstable internet networks and unintegrated information systems, leading to data duplication and inefficiency [7]. These conditions indicate that successful digitalization requires adequate human resources, budget support, infrastructure, and institutional capacity [8][9]. Previous studies emphasize that mastery of technology, human resource readiness, system reliability, infrastructure support, and leadership commitment are critical factors in digital public service success [10]–[18]. However, most studies focus on city, provincial, or agency levels, with limited attention to sub-district or village-level implementation. Therefore, this study fills the research gap by comprehensively analyzing technology utilization in public services at the village level, integrating national policy frameworks, regional dynamics, and local implementation practices. Accordingly, 2 this study aims to: (1) analyze the implementation of technology in public services in Loa Ipuh Darat Village, Tenggarong District, Kutai Kartanegara Regency; and (2) identify the supporting and inhibiting factors influencing its implementation. 2. METHOD This study uses a qualitative approach with a descriptive research type, which aims to describe in depth the implementation of technology utilization in 4 public services in Loa Ipuh Darat Village, Tenggarong District, Kutai Kartanegara Regency. 11 This location was

 chosen purposively because it is one of the villages that has adopted various digital services, such as the Loa Ipuh Darat Digital Library and service integration through the Kukar Population and Civil Registration Office Online Service application. The qualitative approach was chosen because it allows researchers to understand the phenomenon of service digitalization holistically from the

perspective of service implementers and community users. Data were collected through three main techniques: in-depth interviews, direct observation, and documentation. Interviews were conducted with the Loa Ipuh Darat Village Head, village officials, digital service operators, and several residents who use the service application. Observations were conducted to directly observe the technology-based service process, interactions between employees and the community, and the condition of digital facilities and infrastructure. Documentation was obtained from internal village reports, regulations related to digitalization, and data on service application usage. All data were collected in stages to ensure the consistency and interconnectivity of information across sources. The data analysis technique uses the Miles, Huberman, and Saldaña model, which includes data reduction, data presentation, and continuous conclusion drawing [19]. To ensure the validity and credibility of the data, this study applies source triangulation (comparing information from employees, users, and documents), technical triangulation (interviews, observations, documentation), and member checking with key informants to validate the findings. With this approach, the study produces an accurate and accountable empirical picture of the effectiveness of technology utilization in 10 public services in Loa Ipuh Darat Village. 3. RESULTS AND DISCUSSION 3.1 . Results 3.1.1.1 Implementation; Communication a. Transmission Communication transmission within the Edward III framework is the process of conveying policy information accurately, clearly, and consistently to implementers and target groups so that implementation can proceed in accordance with objectives. In the context of information technology utilization in Loa Ipuh Darat Village, policy transmission occurs in stages, starting from the district government to the sub-district level. The Subdistrict Secretary explained that the communication flow begins with an official circular from the district government, which the Communication and Informatics Office forwards through office applications and coordination meetings. Sub-districts then provide guidance both online and offline before the information is disseminated to sub-district officials: “Policy delivery is usually done in stages... The Communications and Information Department forwards it through office applications and

coordination meetings... then we convey it to the sub-districts through staff meetings, internal communication groups, or official letters, depending on the urgency and substance." Interview, July 26, 2025.

https://doi.org/10.58421/misro.v4i4.919 1504 Figure 3. Coordination Meeting with the Communication and Information Service of Kutai Kartanegara Regency Source: Researcher Documentation, 2025 At the sub-district level, civil servants (ASN) stated that policy information is delivered through weekly meetings and internal WhatsApp groups, which are effective in accelerating dissemination, although information is sometimes received close to implementation time (Interview, July 26, 2025). The Kutai Kartanegara Regency Communications and Informatics Office plays a strategic role in policy transmission through circulars, outreach, technical training, webinars, and workshops, indicating that communication is conducted not only structurally but also educationally (Interview, July 27, 2025). From the user perspective, residents of 4 Loa Ipuh Darat Village acknowledged that digital services have eased access to administrative information, which they mostly obtain through village social media and informal networks (Interview, July 27, 2025). Overall, the transmission of digitalization policies 3 in Loa Ipuh Darat Village has been relatively effective through a combination of formal and informal channels. Although timeliness remains a challenge, the active roles of Diskominfo, sub-district, and village officials, 4 as well as positive community responses, indicate that the transmission process supports the sustainable implementation of technology-based public services 5 in line with Edward III's policy implementation framework. b. Clarity Clarity of communication is a key element in Edward III's implementation model, as policies can be implemented effectively only when implementers well understand objectives, procedures, and measures. 3 In Loa Ipuh Darat Village, the clarity of information regarding public service digitalization is generally considered adequate, although technical challenges remain. The Village Secretary, M. Rizal, stated that policy information from the district level is delivered clearly, but some technical terms still require further explanation or training for

sub-district staff (Interview, July 26, 2025). This was reinforced by Ms. Sari, a civil servant, who noted that employees' understanding depends on their technological competence; those familiar with digital systems adapt more quickly, while others need additional guidance supported by written instructions or technical assistance (Interview, July 26, 2025).

https://doi.org/10.58421/misro.v4i4.919 From the technical advisory perspective, the Kutai Kartanegara Regency Communication and Informatics Office emphasized its commitment to using accessible language and providing consultation when ambiguities arise (Interview, July 27, 2025). Overall, the findings indicate that policy clarity in Loa Ipuh Darat Village is sufficient, with ongoing mentoring, clear guidelines, and two-way communication playing a crucial role in supporting the effective implementation of digital public service transformation. c. consistency In George C. Edwards III's policy implementation model, consistent communication 7 is essential to ensure implementers clearly understand policy direction and procedures. Inconsistent communication can lead to confusion and weaken the effectiveness of policies, particularly in the implementation of digital public services. In Loa Ipuh Darat Village, communication consistency has been relatively well maintained. 1 The Village Secretary, M. Rizal, stated that although system updates and application changes occur, the core policy direction toward digital-based public services remains consistent and is clearly communicated by Diskominfo and Bappeda (Interview, July 26, 2025). This view was supported by a village civil servant, Mrs. Sari, who noted that while application changes require adaptation, they do not alter the overarching policy goal of accelerating services through information technology (Interview, July 26, 2025). The Kutai Kartanegara Regency Communication and Informatics Office also confirmed that communication consistency is maintained through regular coordination with villages, despite necessary technical adjustments arising from technological developments (Interview, July 27, 2025). Overall, the findings indicate that communication consistency in 4 Loa Ipuh Darat Village is effective, although ongoing assistance is

needed to help implementers adapt to system changes without disrupting service performance. 3.1.1.2. Resources a. Human Resources Within George C. Edwards III's policy implementation model, resources are a decisive factor in determining policy success. Clear policy directives will not function effectively without adequate human resources, particularly in terms of technical competence and operational capacity. Thus, human resource readiness is a key pillar for implementing technology-based public services at the village level. In Loa Ipuh Darat Village, human resource capacity remains uneven. The Village Secretary, Muhammad Rizal, explained that while some employees—especially younger staff—are responsive to technology, others still require guidance, making internal mentoring and external technical assistance necessary (Interview, July 26, 2025). This condition was also confirmed by Novi Andini, an ASN of Loa Ipuh Darat Village, who stated that although most employees possess basic computer skills, continuous mentoring and training are still needed to ensure uniform competence (Interview, July 26, 2025). The Kutai Kartanegara Regency Communication and Informatics Office similarly noted significant variation in staff capabilities at the village level, highlighting the importance of structured training and technical assistance to support the implementation of

https://doi.org/10.58421/misro.v4i4.919 1506 digital services (Interview, July 27, 2025). In addition, community perspectives indicate that not all residents are ready to fully transition to digital services, as older citizens still prefer face-to-face interactions, reinforcing the need for hybrid service models (Interview, July 27, 2025). Figure 4. Services provided by the Loa Ipuh Darat Subdistrict Source: Researcher Documentation, 2025 Overall, research findings indicate that human resources in Loa Ipuh Darat Village are still in a transition phase toward equitable digital competency. Younger employees are quick to adapt to technology, while senior employees tend to require more intensive guidance. Internal efforts, such as employee mentoring, are underway, but the need for formal training remains significant, and it is hoped that the Communications and

Information Office will facilitate it more regularly. From the perspective of Edward III's theory, this situation illustrates that digital policy implementation at the sub-district level has a clear policy direction, but the heterogeneity of human resource capacity heavily influences its effectiveness. The reliance of older adults on manual services also suggests that digital transformation needs to be implemented in a hybrid manner to maintain service inclusivity. Overall, the diverse human resource capacity indicates that ongoing training support, technical assistance, and plans for the placement of dedicated IT staff in each sub-district are strategic steps that need to be prioritized to support the optimal implementation of digitalization of public services. b. Financial Resources In George C. Edwards III's policy implementation model, financial resources are a critical determinant of policy effectiveness. Adequate budget support is essential to meet technical, operational, and administrative needs, while budget limitations can significantly hinder implementation. In Loa Ipuh Darat Village, financial resources for public service digitalization remain very limited. The Village Secretary, Muhammad Rizal, stated that there is no dedicated IT budget at the village level, resulting in heavy dependence on district funding. Proposals for equipment or software procurement must be submitted to higher-level agencies, which slows implementation (Interview, July 26, 2025). Similarly, an ASN of Loa Ipuh Darat Village,

https://doi.org/10.58421/misro.v4i4.919 1507 Novi Andini, emphasized that the absence of an independent budget restricts maintenance and equipment upgrades, as all needs must follow formal proposal mechanisms (Interview, July 26, 2025). From the district perspective, the Kutai Kartanegara Regency Communication and Informatics Office acknowledged that digitalization funds are available but distributed gradually based on regional priorities and fiscal capacity (Interview, July 27, 2025). Overall, limited financial autonomy and full dependence on district budgets constitute a major obstacle, reducing the village's ability to respond quickly to technological developments. c. Facility Resources Facility resources also play a crucial role in supporting information technology

implementation. According to Edwards III, inadequate facilities can lead to inefficient policy execution. In Loa Ipuh Darat Village, facilities such as computers and internet access are available but not fully adequate. The Village Secretary explained that some equipment is outdated and less compatible with web-based applications, requiring prioritization of usage based on service urgency (Interview, July 26, 2025). This was reinforced by Novi Andini, who noted that aging devices and unstable internet connectivity often slow service delivery, although basic digital tasks remain possible (Interview, July 26, 2025). The Kutai Kartanegara Regency Communication and Informatics Office confirmed that basic equipment distribution has been conducted, but regular updates cannot be implemented simultaneously in all villages due to rapid technological changes and budget constraints (Interview, July 27, 2025). Overall, while facilities are available, significant upgrades and improved network stability are urgently needed to support optimal and sustainable digital public service implementation. 3.1.1.3 Disposition In George C. Edwards III's perspective, disposition refers to the attitude, commitment, and willingness of policy implementers to carry out policies in accordance with predetermined objectives. This factor is decisive because policy implementation will not be effective without positive acceptance and motivation from implementers, even when resources and procedures are available. In Loa Ipuh Darat Village, the disposition of both implementers and the community toward the use of information technology in public services shows a generally positive trend. The Village Secretary, Muhammad Rizal, explained that village officials and the community—especially younger generations — are increasingly aware that manual services are no longer effective, although some residents still hesitate due to fear of making mistakes. He emphasized that continuous encouragement and mindset change are needed to strengthen acceptance of digital services (Interview, July 26, 2025). From the perspective of village civil servants, the use of technology is widely supported because it improves efficiency and accelerates service delivery. Novi Andini, an ASN of Loa Ipuh Darat Village, stated that digital systems make work faster and more efficient, although adaptation and improved human

resource capacity are still required

https://doi.org/10.58421/misro.v4i4.919 1508 (Interview, July 26, 2025). Similarly, the Kutai Kartanegara Regency Communication and Informatics Office observed that sub-district ASN generally show a positive attitude and strong willingness to learn, despite initial concerns about making technical errors (Interview, July 27, 2025). From the community's perspective, digital services are well-received because they reduce queues and simplify administrative processes. However, limited internet access and digital literacy among some residents remain challenges (Interview, July 27, 2025). Overall, the positive disposition of implementers and service users is an important supporting factor in the implementation of digital public services in Loa Ipuh Darat Village, although continued mentoring and improvements in digital literacy are still needed to ensure effective and inclusive implementation. Figure 5. Services Using Technology in Loa Ipuh Darat Subdistrict Source: Researcher Documentation, 2025 In general, research findings indicate that implementers' disposition—among village leaders, civil servants, and the community—is supportive and a driving factor in the successful implementation of digitalization policies. Officials demonstrate a strong commitment to adaptation, while the community benefits directly from the acceleration of technology-based services. However, several dispositional challenges remain, particularly for groups with low digital literacy and employees who still need time to adapt. Therefore, continued training, technical assistance, and an inclusive outreach strategy are crucial for the digitalization process to run equitably and effectively across all levels of society. 3.1.1.4 Bureaucratic Structure Bureaucratic structure is a key element in George C. Edwards III's policy implementation model, encompassing authority hierarchy, coordination mechanisms, task division, and standard operating procedures (SOPs). A responsive structure can facilitate policy implementation, whereas rigid and lengthy procedures may hinder the digitalization of public services. In Loa Ipuh Darat Village, the bureaucratic structure generally supports information technology implementation but lacks sufficient flexibility. The Village

Secretary, Muhammad Rizal, explained that although organizational support exists, responses to system disruptions remain slow due to formal procedural requirements. He noted that long SOPs 5 and the absence of direct technical communication between village operators and

https://doi.org/10.58421/misro.v4i4.919 agency technicians often delay service recovery (Interview, July 26, 2025). Similarly, an ASN of Loa Ipuh Darat Village, Mrs. Novi Andini, highlighted the absence of a dedicated IT position, which forces reliance on a few individuals with technical skills and slows problem resolution (Interview, July 26, 2025). From the district government's perspective, 6 the Kutai Kartanegara Communication and Information Office acknowledged that technical coordination among government levels is not yet fully synchronized. They emphasized 5 the need for clearer coordination flows and the establishment of dedicated IT units at the sub-district level to improve responsiveness (Interview, July 27, 2025). Meanwhile, the community perceives technology-based services as effective when systems function properly but experiences disruption when technical issues occur, and staff are unprepared. Overall, while the bureaucratic structure 18 in Loa Ipuh Darat Village provides a basic foundation for digital service implementation, it still requires structural and procedural adjustments to better accommodate digitalization. Key improvements include the establishment of dedicated IT officers or units, simplification of SOPs for technical handling, and strengthened coordination between village institutions and 6 the Communication and Information Office. Without these reforms, the bureaucratic structure may become a significant barrier to sustainable digital transformation 1 at the village level. Table 1. Implementation Findings Implementation Aspects (Edwards III) Research Findings in 4 Loa Ipuh Darat Village 1. Communication (Transmission, Clarity, Consistency) - Policy communication flows through districts, sub-districts, and villages, and is disseminated through meetings, circulars, and WhatsApp groups. - 12 Policy clarity is quite good, but there are challenges with technical terminology and uneven staff understanding. - Policy consistency is

maintained despite changes to the application, and the Communications and Information Office regularly conducts outreach. 2. Resources (Human Resources, Finance, Facilities) - Human resources have diverse capabilities; some young staff are adaptive, while some senior employees still need mentoring. - There is no dedicated IT budget at the sub-district level, so all technology needs depend on the district budget. - IT facilities are available but not evenly distributed; some devices are outdated, and the internet connection is often unstable. 3. Disposition (Attitude and Commitment of the Implementer) - The Village Secretary, Civil Servants (ASN), and the Communications and Information Service (Diskominfo) have shown strong support for digital services. - Civil Servants have a strong willingness to learn, despite the need to adapt to the new system. - The public supports digital services because they are faster, but some elderly residents still need assistance. 4. Bureaucratic Structure (SOP, Division of Tasks, Coordination Flow) - The bureaucratic structure is formally supportive, but technical SOPs are still lengthy, hampering a rapid response. - There are no dedicated IT officers or positions in the sub-district, so technical handling depends on specific staff. - Technical coordination between regional government agencies (OPDs) is not yet fully synchronized and requires adjustment. Source: Processed by researchers based on findings Based on the overall analysis of the four policy implementation variables according to the George C. Edwards III model: communication, resources, disposition, and

https://doi.org/10.58421/misro.v4i4.919 1510 bureaucratic structure, it can be concluded that the implementation of information technology utilization in public services in Loa Ipuh Darat Village has shown a positive direction, but still faces several fundamental obstacles that need to be addressed immediately. Policy communication has been quite effective through tiered transmission and consistent policy direction, although technical clarity still needs to be strengthened. Resources, both human resources, finances, and facilities, are the most challenging factor due to diverse employee competencies, full dependence on the district budget, and limited devices and networks. The disposition of

implementers shows strong support for digitalization, but still requires increased digital literacy for staff and the community. The bureaucratic structure has provided formal support, but is still hampered by procedural rigidity and the absence of a specific IT position at the village level. Thus, the successful implementation of the public service digitalization policy in Loa Ipuh Darat Village depends heavily on strengthening cross-agency coordination, increasing human resource capacity, improving facilities, and simplifying bureaucratic governance to be more adaptive to the needs of technology-based services. 3.1.1.2 Supporting and Inhibiting Factors of Information Technology Implementation in Improving the Quality of Public Services in Loa Ipuh Darat Village, Tenggarong District, Kutai Kartanegara Regency In the policy implementation process, the success of information technology utilization in public services at the sub-district level is strongly influenced by supporting and inhibiting factors. This is consistent with Edwards III's view that policy effectiveness depends on organizational conditions, implementer capacity, and environmental support. In Loa Ipuh Darat Village, these factors were clearly identified through interviews with village officials, the Kutai Kartanegara Regency Communication and Information Office, civil servants, and the community. Supporting factors primarily stem from strong leadership commitment, network infrastructure readiness in most areas, and increasing public participation. The Village Secretary emphasized that leadership support and growing community familiarity with technology have accelerated the acceptance of IT-based services: "First, of course, is the strong commitment of regional leaders… public participation, especially among the younger generation, is becoming more accustomed to using technology" (Interview, July 26, 2025). This view was reinforced by civil servants who highlighted the leadership's openness to innovation and the community's adaptation to digital services (Interview, July 26, 2025). Diskominfo also noted that leadership support, network availability, and public demand for fast services are key driving factors (Interview, July 27, 2025). However, significant obstacles remain. Limited human resource capacity, particularly digital literacy among some officials, uneven equipment availability, and unstable internet connectivity were

identified as major challenges. The Village Secretary stated, “The main obstacle is limited human resources… lack of uniform equipment, and intermittent network connectivity” (Interview, July 26, 2025). Civil servants further explained that system errors and dependence on external technicians often delay services

https://doi.org/10.58421/misro.v4i4.919 1511 (Interview, July 26, 2025). Diskominfo confirmed that uneven network distribution, lack of local IT personnel, and limited village budgets continue to hinder implementation. From the community’s perspective, digital services are highly beneficial, as they reduce queues and save time (Interview, July 27, 2025), although unstable signals and complex applications still require assistance (Interview, July 27, 2025). Overall, while digitalization in Loa Ipuh Darat Village is supported by leadership commitment and public acceptance, challenges related to human resources, infrastructure, and technical support must be addressed to ensure sustainable and effective implementation. Table 2. Supporting Factors Supporting Factors Data Source (Informant/Interview) Regional leadership’s commitment to encouraging the digitalization of public services Village Secretary (Interview, July 26, 2025) Network infrastructure readiness in most sub-district areas Secretary of the Village Head (July 26, 2025) Community participation, especially the younger generation, who are accustomed to technology Secretary of the Village Head (July 26, 2025) The Village Head’s open support for innovation and digital services Sub-district ASN (July 26, 2025) Public demand for fast and easy services Kukar Communication and Information Service (July 27, 2025) Ease of access to digital services for the public (no need to queue) Society (July 27, 2025) Basic IT equipment is available (computer, router, internet network) Communication and Information Service; Secretary of the Village Head (July 26–27, 2025) Source: Processed by researchers based on findings Meanwhile, the Inhibiting Factors for the Implementation of Information Technology in Public Services in Loa Ipuh Darat Village, Tenggarong District, Kutai Kartanegara Regency Table 3. Inhibiting Factors Inhibiting Factors Forms of Barriers (Interview Findings) Impact on Public Services Limited Human

Resources (Not Yet Digitally Literate) Many employees are not yet accustomed to using computers or digital applications, requiring ongoing support. (Lurah Secretary, July 26, 2025) Service is slow, adapting to new systems takes time, and the risk of incorrect input increases. Inadequate IT Equipment Some computers are old/slow, and incompatible with service applications. (ASN, July 26, 2025) Digital services often stutter, and the data input process takes longer. Unstable Internet Connection Network coverage is often intermittent and patchy, making it difficult for residents in some areas to access digital services. (ASN & Masyarakat, July 27, 2025) Online services are hampered, and data verification and document upload processes are slow. No Dedicated IT Officer The sub-district does not have IT staff, so system repairs depend on specific employees or technicians from the Communications and Slow system outage handling, leading to increased service waiting times.

https://doi.org/10.58421/misro.v4i4.919 1512 Inhibiting Factors Forms of Barriers (Interview Findings) Impact on Public Services Information Service. (ASN, July 26, 2025; Communications and Information Service, July 27, 2025) Application/System Frequent Errors The digital system sometimes experiences glitches, requiring technicians to repair it. (ASN, July 26, 2025) Services were temporarily suspended, causing queues and delays. Uneven Network Infrastructure Residents in some areas lack signal, preventing them from accessing online services. (Diskominfo, July 27, 2025) Not everyone can use digital services; there is inequality in access to them. IT Budget Limitations in the Subdistrict There is no dedicated IT budget at the subdistrict level; all facilities are allocated to the district. (Secretary of the Sub-district & Civil Servant, July 26, 2025) Device updates are slow, and it is difficult to conduct training or procure new devices. Low Digital Literacy in the Community Seniors prefer in-person services because they are unfamiliar with digital applications. (Community, July 27, 2025) The use of digital services is uneven, and the burden of manual services remains high. Lack of Application Usage Guide Some apps are still confusing and lack complete instructions. (Society, July 27, 2025) People have

difficulty using online services, and errors occur in submitting service requests. Source: Processed by researchers based on findings Overall, the use of information technology to improve the quality of public services in Loa Ipuh Darat Village is a process shaped by mutually influencing, supporting, and inhibiting factors. On the one hand, strong commitment from regional leaders, the readiness of network infrastructure in most areas, openness of the apparatus to innovation, and increased public participation—especially from the digitally literate younger generation— are important assets in accelerating the transformation of services towards a more efficient and responsive system. However, a number of obstacles, such as limited human resource capacity, inadequate technological devices, unstable internet networks, the absence of dedicated IT officers at the village level, and the digital literacy gap among the community, remain real challenges in implementing public service digitization policies. Therefore, efforts to accelerate digitalization in Loa Ipuh Darat Village require comprehensive improvements, including increased human resource capacity, adequate facilities and infrastructure, simplification of bureaucratic technical processes, and more intensive digital literacy education, so that technology-based service transformation can run optimally and sustainably. 3.2. Discussion Communication According to George C. Edwards III, communication is a crucial variable in policy implementation, encompassing transmission, clarity, and consistency. In Loa Ipuh Darat Village, communication regarding digitalization policies has generally functioned well. Information is transmitted through formal and informal channels, such as official circulars, coordination meetings, and digital communication groups. Although the flow of information is structured, sudden policy updates sometimes require rapid adaptation by civil servants and

 the community. In terms of clarity, policy objectives to accelerate and simplify digital services are well understood, but technical understanding remains limited, particularly among ASNs unfamiliar with digital systems. Therefore, technical assistance from the Communication and Information Office is

essential to minimize misinterpretation. Communication consistency is also relatively well maintained, as policy direction remains focused on strengthening technology-based services despite system updates. Overall, communication has been effective but still requires improvement in technical clarity and timeliness. These findings align with previous research emphasizing communication as a key determinant of successful technology implementation in public services. 4.2.2 Resources Edwards III identifies resources as a decisive factor in policy implementation. In Loa Ipuh Darat Village, limitations in human, financial, and facility resources hinder the effectiveness of digital services. Human resource competence varies, with younger staff more adaptive to technology than senior employees, although training from Diskominfo has partially reduced this gap. Financially, the lack of a dedicated village IT budget creates a reliance on district funding, slowing procurement and maintenance processes. In terms of facilities, computer equipment and internet access exist but remain inadequate, with outdated hardware and unstable networks limiting system performance [20]. 4.2.3 Disposition Disposition, which includes attitudes and commitment, is generally positive among village officials, Diskominfo staff, and the community. Village leaders and ASN support digitalization and show willingness to learn despite technical constraints. Diskominfo noted active participation from village officials during technical assistance activities. The community also perceives digital services as beneficial, although limited digital literacy causes some residents to prefer face-to-face services. This positive disposition supports implementation, consistent with findings that favorable attitudes accelerate digital service adoption [21]. 4.2.4 Bureaucratic Structure The bureaucratic structure formally supports digitalization, but operational challenges persist. The absence of dedicated IT personnel at the village level leads to reliance on a few technically capable staff and external technicians, resulting in service disruptions and slow response times. Lengthy coordination procedures between sub-districts and agencies further reduce efficiency. This condition reflects Edwards III's assertion that rigid and unspecialized structures hinder effective implementation. 4.2.5 Supporting and Inhibiting Factors in the Implementation of Information Technology in

Improving the Quality of Public Services in Loa Ipuh Darat Subdistrict Supporting factors include strong leadership commitment, positive attitudes of ASN, community acceptance, and the availability of basic internet infrastructure. However,

https://doi.org/10.58421/misro.v4i4.919 1514 inhibiting factors remain significant, particularly limited technical competence, inadequate facilities, unstable networks, budget constraints, and rigid bureaucratic procedures [22]. Public support contributes positively, yet uneven digital literacy and signal quality continue to constrain service utilization [23]. Overall, while digitalization in Loa Ipuh Darat Village shows promising progress, its effectiveness remains limited by resource availability and institutional adaptability [24]. Strengthening human resources, improving infrastructure, appointing dedicated IT officers, and simplifying bureaucratic mechanisms are essential to enhance public service quality. 4. CONCLUSION Based on research on the implementation of information technology to improve public services in Loa Ipuh Darat Subdistrict, several conclusions can be drawn. In terms of implementation, communication generally aligns with George C. Edwards III's model, characterized by hierarchical flows and clear policy direction. However, technical assistance and faster dissemination of information are still needed, particularly during system updates. Resources remain a significant constraint, including limited staff competencies, budget dependence on the district level, and inadequate IT facilities, indicating the need for capacity building, budget support, and infrastructure upgrades. Disposition among implementers and the community is largely positive and supportive of digitalization, though disparities in digital literacy and access require ongoing education and support. Meanwhile, the bureaucratic structure formally supports implementation but is hindered by rigid procedures and the absence of dedicated IT units, resulting in slow technical responses. Simplifying SOPs and establishing IT technical functions are therefore essential. Implementation is supported by leadership commitment, positive attitudes of civil servants, basic network availability, and public acceptance. However, obstacles such as low digital competence, network instability, limited facilities,

and bureaucratic rigidity persist. Strengthening human resources, improving infrastructure, providing local technical support, and streamlining procedures are critical for sustainable digital services. This study has several limitations, including its single-case design, which limits transferability, potential bias from purposive sampling, and limited access to formal documentation. Therefore, future research is recommended to employ comparative or multicase studies, integrate quantitative approaches, and examine the long-term sustainability of digital public services at the local government level.

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