


Strengthening Digital Literacy through Public Innovation: The Socio-political Value of Pustaka Ambaralaya in Bali

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Abstract

The advancement of information technology has driven the transformation of library services into digital systems, enhancing public access to information and literacy. This study analyzes the implementation of the Pustaka Ambaralaya application by the Bali Provincial Regional Library as an innovation in digital public services. Employing a qualitative descriptive approach, data were collected through interviews with administrators and users, as well as direct observation. The analysis draws on Everett Rogers' diffusion of innovation theory, focusing on five characteristics: relative advantage, compatibility, complexity, trialability, and observability. Findings show that Pustaka Ambaralaya offers unrestricted access to information, aligns with the digital habits of Balinese society, and features a simple, user-friendly interface. Despite lacking a trial version, its free access lowers barriers and enhances trialability. Observational data reveal a significant increase in user engagement with digital library services. The study concludes that Pustaka Ambaralaya serves as an effective public innovation for fostering digital literacy and reading culture. The novelty lies in its emphasis on the socio-political value of digital innovation in strengthening human capital at the regional level, offering significant contributions to social and political science discourse, particularly in the area of technology-based public service innovation.

Keywords: Digital Innovation, Public Service, Library Transformation, Digital Literacy, Socio-Political Development

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INTRODUCTION

Digital transformation has become a major force in the delivery of public services, including in the domain of libraries (Buyannemekh et al., 2024; Kesar & Joseph, 2025). Amid the rapid flow of information and changing societal behaviors increasingly reliant on technology, libraries are expected not only to serve as providers of physical books but also as active agents in creating access to digital-based literacy. However, many regional libraries in Indonesia still lag behind in terms of innovation, both technologically and in their approach to users. One of the main challenges is the low level of public participation in library services, largely due to limited physical access, time constraints, and the underdeveloped reading interest among the population (Fannur, 2023; Lee, 2024). This underscores the importance of exploring new innovations in digital library services that not only keep pace with contemporary needs but also address broader social and political dimensions: shaping digital citizens who are information literate, intellectually active, and participative in development.

In this context, Pustaka Ambaralaya, developed by the Regional Library Office of Bali Province, emerges as an intriguing breakthrough. This application integrates digital library services with principles of easy access, information transparency, and local wisdom. Its presence represents a paradigm shift from the traditional physical library space to an inclusive and dynamic digital realm. Several researchers have previously studied digital library service innovations. For instance, Anurogo et al. (2023), Hosen & Jonayed (2024), and Septiari & Prabawati (2025) discuss the importance of digital transformation in library services to meet the challenges of the Fourth Industrial Revolution. Meanwhile, Prasetyo and Marbun (2021) emphasize the need for digital literacy as a prerequisite for effectively utilizing online library services.

Other studies by Izuogu et al. (2025) and Pradnyani & Prabawati (2025) highlight that the success of digital library services is determined by how well the technology integrates with the needs and habits of the community. This emphasis aligns with findings from Hieng & Prabawati (2025), Indrak & Pokorna (2021), and Salsinha & Lukman (2025), who argue that library digital applications must be designed with simple user interfaces, open access, and content relevant to the local community. On another front, Okunlaya et al. (2022) and Otia & Bracci (2022) add that the development of digital library applications also contributes to creating new public spaces for discussion and learning, indirectly strengthening social cohesion. Globally, research by Dobrolyubova (2021), Johri & Kumar (2023), and Kraus et al. (2021) has shown that digital innovations in public services such as libraries can encourage broader community participation and reinforce the social capacity of citizens.

In the Indonesian context, studies by Afiyah & Muthoifin (2024), Nasrullah et al. (2024), and Novrita et al. (2025) suggest that digital libraries can help bridge the literacy gap, especially in areas with limited formal educational facilities. Research by Bakhtiar et al. (2024) and Younus et al. (2024) also stresses that library digitalization must be accompanied by efforts to raise public awareness of the importance of information literacy. This is further supported by Marsini (2023) and Sari et al. (2024), who argue that a successful digital library application is one that can offer an enjoyable reading experience without burdening users with complex technical features. Furthermore, Suwana (2021), Winata et al. (2021), and Zainal Abiddin et al. (2022) underline that many forms of digital service innovations fail because they do not account for local social and cultural appropriateness—an aspect often overlooked in policy design.

Amid these dynamics, Pustaka Ambaralaya emerges with an approach that attempts to integrate all aspects highlighted in previous studies: user-friendly technology, relevant local content, and accessible features that eliminate geographic and time-related barriers. Yet, few studies have specifically examined this application through the theoretical framework of Everett Rogers' Diffusion of Innovations, which is particularly apt for explaining why an innovation may be accepted or rejected by society. This is the critical knowledge gap that this study seeks to address.

Rather than merely focusing on technical aspects, this study delves deeper into how social and political values influence the adoption of digital library applications in Balinese society. There is a subtler yet significant dimension that is often neglected: how such digital innovations contribute to shaping literacy awareness as part of a critical and participatory digital citizen identity. By positioning Pustaka Ambaralaya as a case study, this article not only contributes to the academic understanding of technology and literacy but also raises questions about how public innovations can foster new relationships between the state and its citizens in the digital space.

The objective of this research is to analyze the extent to which Pustaka Ambaralaya strengthens digital literacy among the Balinese community through a public service innovation approach. Using the Diffusion of Innovations theory, this article examines the innovation characteristics offered by the application and how these features are received by the users. The research also aims to uncover the socio-political dynamics behind the adoption of information technology in the context of digital library services, as a contribution to the development of social and political sciences, particularly in the study of public innovation and technology-based community development.

RESEARCH METHOD

This study employs a descriptive qualitative approach, considering that the phenomenon under investigation involves social and cultural dynamics that cannot be fully understood through numbers and statistics alone. The primary objective of this research is to gain a deep understanding of how the Pustaka Ambaralaya application is adopted by the Balinese community, and how the innovation reshapes literacy practices in the digital era. A qualitative approach enables the researcher to explore the meanings, perceptions, and subjective experiences of users and managers of this digital library service—elements that cannot be reduced to quantitative variables. As Lim (2025) and Pousti et al. (2021) note, a qualitative approach allows researchers to construct a richer and more complex understanding of social realities, especially in value-laden contexts such as technology-based public services.

The research was conducted at the Regional Library and Archives Office of Bali Province as the primary site, since this institution is the initiator and main manager of the Pustaka Ambaralaya application. This location was chosen not only because of the presence of the application but also due to Bali's unique societal characteristics in blending modernity with tradition. The Balinese community is known for being adaptive to digital technology while maintaining strong cultural roots. This context provides fertile ground for exploring how public technology innovations like Pustaka Ambaralaya can integrate into daily life and foster inclusive digital literacy.

Participants in this study were selected purposively based on their relevance and capacity to provide in-depth and reflective data. A total of eight primary informants were selected, consisting of three application managers from the Library Office, two librarians

directly involved in digital promotion and education, and three active users from the general public with varied ages and professions. Informants were chosen based on the principle of experiential representation—those directly involved in or impacted by the application’s implementation (Kozinets, 2023; Stutchbury, 2022). Managers and librarians were included to portray the policy and operational aspects of the application, while users were selected to understand how the application is perceived and experienced in everyday life.

Data were collected through in-depth interviews and participatory observation. The interviews were semi-structured to allow informants the freedom to express their views and experiences while maintaining alignment with the research themes. Interviews were conducted both in person and online, depending on the informants’ availability and field conditions. Observation was conducted by attending several digital literacy promotion activities organized by the library, and by directly observing the application’s usage in digital reading rooms and through online user-librarian interactions. This method was chosen to allow the researcher to capture behaviors, habits, and social interactions that may not be revealed through interviews alone, as recommended by Pousti et al. (2021) in their mini-ethnographic approach.

To ensure the validity and reliability of the data, source and method triangulation were applied. Source triangulation involved comparing information obtained from various informants with different backgrounds, both from service providers and users. Method triangulation involved combining data from interviews and observations, as well as reviewing official documents such as activity reports, user statistics, and promotional materials for the application. This triangulation technique is crucial to avoid single-perspective bias and to build a more comprehensive understanding of the studied phenomenon (Motulsky, 2021; Nha, 2021).

RESULTS AND DISCUSSION

Digital Innovation in Library Services: Promoting More Inclusive Access

Digital transformation has become a key marker in the changing landscape of public services, including in the field of libraries (Tseng et al., 2022). In this context, the Pustaka Ambaralaya application stands as a tangible representation of digital innovation aimed at addressing fundamental issues related to limited access to information and literacy. One of the main advantages of this application is its ability to overcome the constraints of space and time in the process of learning and information seeking. With its online-accessible digital format, Pustaka Ambaralaya opens up wider opportunities for the public—particularly in Bali—to access reading materials without the need to be physically present at a library.

This advantage is reflected in interview results with one active user, a student from Gianyar, who stated that the application allowed him to search for academic references from home or campus without spending time and money to travel to Denpasar, where the provincial library is located. A similar experience was shared by a junior high school teacher in Karangasem who admitted using the application to support students’ online learning,

especially during the pandemic. Both described Pustaka Ambaralaya not merely as an application, but as a practical solution to geographic disparities in access to literacy.

Direct field observations, particularly in the digital service area of the Bali Provincial Library, reinforce these findings. The digital service room features a large banner that reads “Pustaka Ambaralaya: Read Anywhere, Anytime” welcoming visitors at the lobby entrance. In one corner of the room, there is an educational poster containing instructions on how to download and use the application, clearly explaining the registration steps and highlighting its main features. The library staff are also quick to assist new users in downloading the application using the free Wi-Fi provided. These observations indicate that Pustaka Ambaralaya exists not only as a digital product in cyberspace but also as an integral part of the library’s physical service ecosystem, reinforcing one another.

Theoretically, the emergence and implementation of Pustaka Ambaralaya can be linked to the concept of digital inclusion developed by Kwilinski et al. (2023), which asserts that meaningful digital access is not only determined by the availability of technology but also by social dimensions, such as digital literacy, policy support, and supporting infrastructure. In the context of Bali, this application reflects a systematic effort by local government to bridge the digital divide between regions, particularly those that have long experienced limitations in accessing educational and informational facilities. Its lightweight design and compatibility with Android-based devices—predominantly owned by the public—enhance the outreach of this innovation to a broader segment of society.

Furthermore, the success of Pustaka Ambaralaya is also inseparable from the framework of innovation diffusion as developed by Rogers (1976), particularly in the dimension of relative advantage. This dimension explains that an innovation will be adopted more quickly if it is perceived to provide greater benefits compared to previous systems. In this case, the flexibility and ease of information access offered by the application clearly provide greater value than conventional libraries. This was also affirmed by one informant from the management team, Mr. D.G.W., who emphasized that the application was not only designed to broaden access but also to simplify the digital reading experience through a user-friendly interface.

However, the application’s success is not solely measured by technical convenience, but also by its impact on changing public literacy behaviors. Reading activities are no longer confined to library spaces but have become integrated into the digital rhythm of life in Balinese society. One interesting finding from interviews with several reading community members in Klungkung is that they have started to integrate online discussions about books available on Pustaka Ambaralaya via WhatsApp and Telegram groups, indicating that the application not only provides access but also encourages the formation of new social spaces within the literacy ecosystem.

Thus, it can be said that digital innovations in the form of library applications like Pustaka Ambaralaya play a significant role in expanding access to information inclusively. Its relative advantages as a flexible, affordable, and lifestyle-adaptive service make it more than

just a technology platform—it is part of a social movement that supports the democratization of information. In line with Khanna’s (2021) view, the success of a digital innovation does not lie solely in its technological features but in its ability to build social infrastructure and reinforce literacy as a collective cultural practice.

Compatibility and Complexity: Integrating into Bali’s Digital Habits

The success of a digital innovation in public services is not determined solely by the sophistication of the technology used but also by how well it aligns with the values, habits, and needs of its users. In the case of Pustaka Ambaralaya, the application demonstrates high compatibility with the digital lifestyle of Balinese society, particularly among the youth and working-age population. Field data shows that most active users are between the ages of 17 and 35, a group already deeply familiar with mobile devices, internet access, and interaction through digital applications. This makes adoption of Pustaka Ambaralaya feel natural, as it does not require major behavioral changes, but rather reinforces digital practices already embedded in daily life.

One informant, Mr. A.K., a private employee in Denpasar, explained that he started using Pustaka Ambaralaya regularly to find reading material for his commute home using public transportation. According to him, the app is lightweight and easy to use, requiring no complicated login process. He added that the user interface is intuitive and does not overwhelm new users. A similar sentiment was expressed by another informant, Ms. N.L., a final-semester student in Singaraja, who said she found the app helpful with its simple search feature that allowed her to quickly find popular books needed for completing her thesis.

Direct observations at the public digital library space in Denpasar also support these findings. In one corner of the room, several computers are equipped with direct access to Pustaka Ambaralaya. During the observation, visitors—some of whom appeared to be first-time users—seemed to navigate the app’s features with ease. Library staff did not need to provide intensive assistance, as the usage process was smooth and required minimal technical support. In fact, most visitors preferred to use their personal devices—such as phones and tablets—because the app is compatible with the majority of mobile operating systems. This indicates that the application’s complexity is low, meaning users from diverse backgrounds can access and use it without the need for special technical training.

Theoretically, compatibility and complexity are two key characteristics in Rogers’ (1976) diffusion of innovations theory. Compatibility reflects how well an innovation aligns with existing values, past experiences, and users’ needs. Complexity refers to the perceived difficulty in understanding and using the innovation. In this case, Pustaka Ambaralaya performs well on both fronts. The application is not only in harmony with the digital habits of Balinese society but also does not pose technical or design barriers that might confuse users.

This analysis becomes even more relevant when linked to the perspective of Ha & Thanh (2022) on the importance of user-centric design in the success of digital innovations in the public sector. According to them, successful technology adoption is inseparable from the extent to which the technology design is based on a deep understanding of user needs and

habits. A user-centered design approach makes technology not just a tool but part of the social practices that shape lifestyle. In the case of Pustaka Ambaralaya, its simple yet functional design has successfully integrated digital literacy into everyday habits, rather than positioning it as an additional activity. This creates a close, unforced relationship between users and technology, making the adoption process conscious and voluntary.

Moreover, the ease of using Pustaka Ambaralaya contributes to the public's positive perception of digital public services. This application successfully breaks through the bureaucratic barriers that are often perceived as slow and convoluted. On the contrary, Pustaka Ambaralaya shows that when public services are designed with user orientation, technology can bridge the relationship between state and citizens in a more humanistic, efficient, and meaningful way. The success of Pustaka Ambaralaya lies not only in how sophisticated its digital system is but also in how well it integrates into the everyday rhythm of life in a society already accustomed to digital culture. Its high compatibility and low complexity make it not merely a technological innovation, but part of a cultural transformation that changes how people access, manage, and interpret literacy in the digital era.

Trialability and Observability: Minimizing Adoption Barriers Through Free Access and Social Engagement

One of the key strengths of Pustaka Ambaralaya as a public digital innovation lies in its ability to minimize adoption barriers through an open-access and cost-free mechanism. Although this application does not offer limited trial features like many commercial apps, its system—by default free and immediately usable—creates a strong sense of trialability. In Rogers' (1976) diffusion of innovation theory, trialability refers to the extent to which an innovation can be experimented with on a limited basis before full adoption. Pustaka Ambaralaya addresses this dimension with an inclusive approach: anyone can download, access, and start using the application without needing to register or pay a subscription.

According to interviews with several users, this ease of access was the primary reason they initially tried and later regularly used the app. Mr. R.Y., a teacher from Gianyar, stated that he first learned about the application from a social media post by the Bali Provincial Library Office. Because it did not require registration or the provision of personal data, he felt unburdened and immediately tried accessing children's reading materials for teaching purposes. In his first experience, he encountered no technical difficulties and has since used the app regularly with his students.

Similar findings emerged from field observations at several digital literacy events organized by the Bali Provincial Library. During a visit to a "Digital Reading Corner" event held in a public space in Renon, Denpasar, there was visible enthusiasm for the service. Library staff provided tablets preloaded with Pustaka Ambaralaya, and visitors were free to try them out without any administrative procedures. Children, teenagers, and adults browsed the digital collection and read books according to their interests. Many of them downloaded the app on their phones after experiencing how easy it was to use.

This situation illustrates how the innovation is observable—visible and tangible in everyday social practices. According to Rogers (1976), observability is the extent to which the results of an innovation are visible to others, which can encourage broader adoption. Pustaka Ambaralaya is not merely a hidden system within digital devices but part of a collective activity that is showcased and shared through various social media and community channels.

In practice, the social involvement of librarians and literacy communities plays a significant role in reinforcing the observability of this innovation. One librarian, Mr. M.D., explained that they actively promote the app both online through social media and offline through community literacy activities. They not only introduce the app's features but also offer direct guidance on its use, especially for first-time users unfamiliar with digital library services. This process not only encourages adoption but also creates a social experience that strengthens public trust in the innovation.

Furthermore, this approach aligns with Kraus et al. (2021), who emphasize that technology adoption is often influenced by how visible an innovative practice is within social networks. When an innovation is openly used, shared on social media, or demonstrated in community events, its adoption potential increases significantly because people see how it works in real-life settings. In the context of Pustaka Ambaralaya, this visibility is strengthened through literacy events, librarian social media posts, user testimonials, and its presence in various public interaction spaces.

Pustaka Ambaralaya not only provides technology but also cultivates a vibrant and dynamic adoption ecosystem where people are encouraged to participate because they witness its direct benefits. As such, the strategy of open access and active social promotion positions this application not merely as a technical innovation but as a grassroots social movement embedded in public interaction and participation.

The Social and Political Value of Public Digital Innovation: Literacy as a New Form of Social Capital

Pustaka Ambaralaya is not merely a digital library application offering online reading collections—it is a representation of how technological innovation can bridge the relationship between the state and citizens in building collective and sustainable learning spaces. In the context of Bali, where community-based social values remain deeply rooted, this application does not disrupt tradition but instead offers a new form of civic participation in inclusive and adaptive knowledge development.

In this regard, the Bali Provincial Library Office functions not only as a service provider but also as a facilitator of digital public spaces that foster social interaction, literacy enhancement, and human capital development. This role is evident in various digital literacy programs that do more than introduce the app—they actively invite community involvement. In a literacy event in Pujungan Village, Tabanan, for example, researchers observed librarians engaging residents—particularly women from family welfare groups (PKK) and youth from local organizations—to discuss the contents of digital books read together via Pustaka Ambaralaya. The event was simple and held at the village hall, yet it created a lively discussion

space. Here, the social value of the application becomes evident: digital books become a meeting point between generations, professions, and perspectives.

One informant, Ms. L.N., a local literacy activist, noted that the app has made community learning processes more flexible and no longer tied to the operating hours of physical libraries. She added that many housewives now read children's stories on their phones to tell their kids before bedtime. This demonstrates that the app has become part of everyday practice and, more importantly, has expanded the meaning of literacy into a social process that builds interpersonal connections and reinforces a sense of ownership over shared learning spaces.

From a theoretical perspective, this aligns with Khanna's (2021) view that valuable public innovation is not only about administrative efficiency but also about cultivating social and political values that strengthen the relationship between public institutions and citizens. In this framework, Pustaka Ambaralaya symbolizes the state's commitment to ensuring equitable access to knowledge for all its citizens. Access justice becomes a new form of public service aimed at creating social value.

The political aspect of this innovation is not partisan but rather a reflection of the state's presence in accompanying citizens' learning processes through digital means. Field observations in Denpasar showed that promotional events for the app were often attended by regional officials, who delivered speeches not as bureaucratic routine, but with narratives that framed literacy as a pathway to enhancing the competitiveness and dignity of Balinese citizens amid the global information surge. Such narratives reflect a more substantive political dimension—namely, empowerment politics—in which digital innovations like Pustaka Ambaralaya serve as instruments for developing human capital that is measured not only in user numbers but in the quality of social interaction fostered through reading.

Through this public innovation, digital literacy becomes a new form of social capital—no longer confined to physical spaces or elite groups. When citizens feel involved, included, and able to integrate the application into their daily lives, the social and political value of the innovation grows organically. Pustaka Ambaralaya teaches us that technology managed with social sensitivity can become a micro-political space where knowledge, trust, and citizens' aspirations toward their government are interwoven in a more fluid and dialogical format.

Reflection on Innovation Diffusion and the Local Context

This subchapter serves as a contemplative space, seeking to reconnect the empirical findings with Rogers' theoretical framework of innovation diffusion, while also positioning public innovation within Bali's unique social and cultural context. As previously discussed, Rogers' five key characteristics—relative advantage, compatibility, complexity, trialability, and observability—have proven to be applicable analytical tools for assessing the success of Pustaka Ambaralaya. However, field findings also reveal an important insight that transcends the theoretical boundaries: the success of innovation is not merely a result of sound technological design, but also of its ability to interpret and adapt to local sensitivities.

During an observation conducted in Sukawati Village, Gianyar, the communal use of Pustaka Ambaralaya revealed a vibrant atmosphere. In the balai banjar—a community hall typically used for customary meetings—a group of teenagers was seen reading digital novels on their phones while discussing the stories. Nearby, an elderly man accompanied by his grandchild attempted to access the same application with assistance from a mobile librarian. This situation reflects more than just access to technology; it demonstrates intergenerational encounters facilitated by digital innovation. It is here that Rogers' theory finds its reflection in social reality: the characteristics of innovation gain significance when they directly intersect with the lived experiences, values, and social rhythms of the receiving community.

One informant, Mr. Y.P., a senior librarian involved in the app's development, stated that a community-based approach was key to the adoption of Pustaka Ambaralaya. He emphasized that involving customary leaders and respected community figures in the socialization process helped residents perceive the app not merely as a government product, but as a shared resource. This illustrates how innovation can gain widespread acceptance when positioned not vertically, but horizontally through strong social networks.

Such an approach aligns with the idea of sociotechnical systems in contemporary innovation studies, as articulated by Septiari & Prabawati (2025), which asserts that technology is always inextricably linked with its social context. In this sense, Pustaka Ambaralaya is not merely a technological system but part of a mutually supportive social system. This dynamic underscores that innovation cannot be neutral; it inherently carries values, power relations, and social practices that both shape and are shaped by its users.

By using Pustaka Ambaralaya as a case study, this article implicitly affirms the novelty of its approach: public digital innovation must be understood as a complex social process full of negotiation and adaptation, not simply a matter of technology transfer. It is within this very complexity that the true strength of innovation is revealed—when it strengthens social cohesion, opens spaces for intergenerational dialogue, and imbues literacy practices with new meaning amidst changing times. Thus, while innovation diffusion has often been interpreted through a technical and rational lens, this study adds cultural and political dimensions as inseparable parts of successful technological adoption in local communities.

CONCLUSION

Based on the findings and analyses conducted, it can be concluded that the implementation of Pustaka Ambaralaya as a digital library service innovation in Bali has not only been effective in strengthening digital literacy but also represents a successful innovation diffusion strategy embedded in the social and cultural context of the local community. The application not only facilitates inclusive access to information across geographical boundaries but also integrates smoothly into the digital habits of the population through its simple interface and intuitive use. By offering free and open access, Pustaka Ambaralaya reinforces the elements of trialability and observability, which in turn encourage greater public participation in literacy activities. Furthermore, the app's presence has generated new public

value of a sociopolitical nature—encouraging collaboration between the state and citizens in a participatory digital space, while also demonstrating that technological innovation can serve as an instrument for empowering human capital in the region. These findings affirm not only the relevance of innovation diffusion theory in understanding local-level technology adoption but also offer a conceptual novelty: public digital innovation should be viewed as a social process oriented toward the creation of shared value and sustainable development within the framework of social and political sciences.

ETHICAL STATEMENT AND DISCLOSURE

This study was conducted in accordance with established ethical principles, including informed consent, protection of informants' confidentiality, and respect for local cultural values. Special consideration was given to participants from vulnerable groups to ensure their safety, comfort, and equal rights to participate. No external funding was received, and the authors declare no conflict of interest. All data and information presented were collected through valid research methods and have been verified to ensure their accuracy and reliability. The use of artificial intelligence (AI) was limited to technical assistance for writing and language editing, without influencing the scientific substance of the work. The authors express their gratitude to the informants for their valuable insights, and to the anonymous reviewers for their constructive feedback on an earlier version of this manuscript. The authors take full responsibility for the content and conclusions of this article.

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