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Strategi Inovasi Pengembangan SDM Aparatur di Era Digitalisasi BPSDMD Provinsi Banten

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Abstract

Local governments are required to adapt to electronic systems through the Electronic-Based Government System (SPBE) policy. The Human Resources Development Agency (BPSDMD) of Banten Province faces challenges regarding low digital literacy among civil servants, a conventional work culture, and limited network infrastructure. This study aims to assess the effectiveness of innovation strategies for civil servant human resource development in addressing these challenges, utilizing Chandler's strategy theory and Bekkers' digitalization framework. A descriptive qualitative approach was employed, involving interviews, observations, and document analysis. The results indicate that BPSDMD Banten Province successfully implemented blended learning and remote learning methods, alongside optimizing the "Banten Ceria" and "Teko Banten" Learning Management Systems (LMS). Key supporting factors included central policy support, physical facilities, and regional budget (APBD) allocations; conversely, network disruptions and participants' limited digital literacy acted as obstacles, which were mitigated through a humanistic support approach and the simplification of application interfaces. It is concluded that digitalization innovation strategies are crucial for bureaucratic transformation; however, they require continuous post-training performance evaluation and the enrichment of interactive features to maximize employee competence in public service. The study recommends that the agency strengthen internet infrastructure redundancy, recruit additional programming experts, and expand micro-learning content to ensure the innovation remains responsive to technological advancements.

Keywords: Strategy; Innovation; Human Resource Development; Civil Servants; Digitalization

Introduction

Advancements in information and communication technology have driven a transformation in government governance, particularly through the digitalization of various administrative processes and public services. This transformation is a crucial component of the bureaucratic reform agenda aimed at establishing a government that is effective, efficient, transparent, and accountable. In Indonesia, the implementation of the Electronic-Based Government System (SPBE) stands as a key strategic policy for accelerating digital transformation across all government agencies, at both central and regional levels (Suryana et al., 2025). Government digitalization is no longer viewed merely as the utilization of technology, but rather as a paradigm shift in public service delivery focused on enhancing the quality of governance.

Digital transformation within the bureaucracy relies not only on the availability of technological infrastructure but is also heavily determined by the quality of the civil service workforce. State Civil Apparatus (ASN) personnel—comprising Civil Servants (PNS) and Government Employees with Work Agreements (PPPK)—are required to possess digital

competencies, adaptability to change, an innovative mindset, and the ability to collaborate within a technology-driven work environment. These competencies are essential prerequisites for the effective implementation of digital policies and for driving improvements in public service quality (Novitasari et al., 2025). Consequently, ASN capacity building serves as a strategic factor in ensuring the success of the digital bureaucratic transformation.

Despite the implementation of various digitalization policies, execution across different regions still faces a number of obstacles. The gap between policy and practice on the ground reveals uneven readiness among civil servants to adopt technology. Disparities in digital literacy levels and proficiency in using government applications, alongside resistance to change, remain challenges to achieving an optimal digital bureaucracy. These conditions indicate that digital transformation requires a human resource development strategy that focuses not only on enhancing technical competencies but also on shifting organizational culture, enabling civil servants to adapt to the demands of an evolving work environment. As a local government committed to supporting bureaucratic reform, the Banten Provincial Government continues to promote the adoption of digital innovations in governance. A key agency playing a strategic role in civil servant capacity building is the Banten Province Regional Human Resources Development Agency (BPSDMD). This agency is responsible for organizing education and training for civil servants to enhance their competencies in line with evolving organizational needs. In recent years, BPSDMD Banten has begun integrating digital technology by implementing the "Banten Ceria" Learning Management System (LMS) and blended learning methods as innovative approaches to delivering education and training (Ratnasari et al., 2025).

While the implementation of these digital innovations has facilitated the delivery of education and training, the process has not yet reached optimal performance. Several challenges persist, including low digital literacy among some participants—particularly senior civil servants accustomed to conventional learning methods—and heavy workloads at participants' home agencies, which hinder active participation in online learning. Additionally, there remains a perception that education and training serve merely as administrative requirements for career advancement. These conditions result in low motivation for independent learning and suboptimal use of digital platforms during the learning process (Rusmulyani & Riani, 2024).

Beyond human resource factors, digital-based education and training also face technical and institutional challenges. Issues such as limited internet connectivity in certain areas, a lack of supporting equipment at participants' agencies, suboptimal cross-organizational coordination, and limited direct interaction between participants and trainers (widyaiswara) affect the effectiveness of online learning. These obstacles demonstrate that the success of digital innovation in education and training depends not only on technology adoption but also on organizational readiness, infrastructure support, and effective management of the training implementation (Wahyudi & Fitriani, 2024).

Theoretically, human resource development through education and training constitutes a form of long-term investment, as outlined in human capital theory, which positions competence enhancement as a vital asset for boosting organizational productivity (Becker, 1964, cited in Hasibuan, 2019). Such investment yields optimal results when supported by systematic training planning, material alignment with job requirements, and an organizational environment that fosters the application of competencies gained during training to actual task performance (Sedarmayanti, 2017). Consequently, innovations in the delivery of digital-based education and training require comprehensive management to ensure the sustainable enhancement of civil servant capacity.

In light of this context, BPSDMD Banten Province has developed various digital innovation strategies, including the digitization of education and training administration, the

optimization of the "Banten Ceria" Learning Management System (LMS) features, the provision of interactive learning materials, and the establishment of a digital alumni forum to facilitate post-training knowledge sharing (Ayuningtyas, 2022). These innovations demonstrate the organization's commitment to strengthening the capacity of State Civil Apparatus (ASN) personnel through the utilization of digital technology. However, the effectiveness of implementing these strategies warrants further in-depth study—specifically regarding the execution of digital innovation strategies, the factors facilitating or hindering their implementation, and their contribution to improving the quality of ASN education and training delivery. Therefore, this study aims to analyze the digital innovation strategies implemented by BPSDMD Banten Province to enhance the effectiveness of civil servant education and training, as part of efforts to support the digital transformation of the bureaucracy.

Method

This study employs a qualitative approach using a case study method to conduct an in-depth exploration of innovation strategies for the human resource development of civil servants at the Banten Province Human Resources Development Agency (BPSDMD) (Moleong, 2018). The case study method was selected as the most relevant approach for analyzing the dynamics of innovation in government technical training within the era of digitalization (Sugiyono, 2017). The research was conducted over a two-month period, from April to July 2026, at the BPSDMD Banten Province office. The research subjects comprised key informants, primary informants, and additional informants selected via purposive sampling, based on their level of direct involvement in the phenomenon under study (Sugiyono, 2017). The key informant was the Head of BPSDMD Banten Province; the primary informant was the Head of the Government Technical Training Division; and the additional informants were government technical training staff. The study focused on innovation strategies for civil servant human resource development, encompassing training administration systems, teaching methods, and the utilization of digital technology through the "LMS Banten Ceria" platform.

Data collection was carried out in a natural setting, with the researcher acting as the primary instrument through direct observation, semi-structured interviews, and the review of written documents (Moleong, 2018). Primary data were obtained directly from informants through interviews and fieldwork observations regarding the implementation of digital training, while secondary data were gathered from literature, laws and regulations, and relevant agency documents (Rukajat, 2018). Research instruments included interview guides, observation notes, and document checklists. To ensure data validity, the study employed triangulation techniques, including source triangulation (comparing information across informants), technique triangulation (comparing data from observations, interviews, and documentation), and time triangulation (cross-checking at different times) (Rijali, 2018). Data analysis was conducted systematically based on Creswell's (2018) model, which comprises six stages: (1) organizing and preparing the data; (2) reading and comprehending the data in its entirety; (3) coding the data; (4) identifying key themes and categories; (5) presenting the analysis results narratively and visually; and (6) interpreting the meaning of the findings by linking them to relevant theories (Creswell, 2018). This process aimed to organize field findings—ranging from interview transcripts to the drawing of conclusions—in a manner that reflects the profound significance of the innovation strategies implemented by BPSDMD Banten Province in addressing the challenges of digital transformation.

Result and Discussion

Modernisasi birokrasi menuntut adanya perubahan radikal dalam cara pemerintah daerah ...managing and enhancing the capacity of the state civil apparatus. Amidst the exponential pace of modern change, conventional, rigid, and centralized education and training

models can no longer keep up with the competency demands of the public sector. The Banten Province Regional Human Resources Development Agency recognized this urgency by launching digital-based training innovations. This move was not merely a trend of technology adoption but a deliberate decision to re-engineer the entire apparatus learning ecosystem, making it more adaptive and responsive.

The implementation of this digital training is an integral part of the region's broader efforts to support a nationally integrated, electronic-based government architecture. This transformation serves as a crucial foundation, as a sophisticated digital government system cannot function optimally without a workforce prepared to operate it. By digitizing the competency development sector, the regional government is independently bridging the gap between available technological infrastructure and the work culture readiness of a digitally literate civil service.

Conceptually, the developments at this agency signal a fundamental deconstruction of the prevailing training paradigm. True digital transformation should not be narrowly understood as merely moving material from physical books to device screens or shifting face-to-face lectures to virtual meeting rooms. Rather, the change is systemic, involving the reconstruction of more concise curricula, instructional methodologies centered on learner autonomy, and the standardization of evaluation metrics based on precise competency achievement data.

In the conceptualization and execution of this innovation, the Government Technical Division holds a highly strategic position as a catalyst for change. This division made the bold decision to prioritize digitalization above all else within the agency's action plan. This choice is grounded in an analysis of workload and workforce demographics; technical training consistently draws the largest volume of participants from a wide array of agencies across the region, meaning that efficiency gains in this sector yield the most significant multiplier effect for the organization.

The shift from traditional classrooms to digital learning environments has—slowly but surely—triggered a cultural shift in how local government personnel approach learning. Training is no longer viewed merely as a bureaucratic burden or an off-site assignment synonymous with hotel stays and official travel that drains the regional budget. Instead, digitalization restores the essence of training to that of self-directed learning integrated into daily work activities; it drives substantial public budget efficiency and eliminates unproductive bureaucratic formalities.

The tangible realization of this major innovation strategy hinges on the development of an integrated learning management platform known as *LMS Banten Ceria*. This platform is designed as a unified information architecture that consolidates previously fragmented operational training subsystems. Within this digital ecosystem, the entire training participation lifecycle—ranging from administrative selection and the distribution of interactive modules to group discussions, independent assignment submissions, and final assessment—is managed through an integrated, automated process.

The information technology systems embedded in the platform have proven instrumental in streamlining the internal bureaucracy of the organizing body. Administrative procedures that once required multiple stages of verbal and physical approval have now been simplified through automated dashboard workflows. This reduction in clerical workload affords instructors and training specialists valuable time to focus on enhancing the quality of teaching materials and developing superior case studies.

From an ecological perspective, this innovation serves as tangible proof of the institution's commitment to implementing environmentally friendly governance through a paperless initiative. Thousands of reams of paper—previously consumed by teaching materials, assessment forms, daily attendance sheets, and exam answer sheets—have been entirely

eliminated and replaced by digital documents. This move not only drastically cuts office operational costs but also creates a training record-keeping system that is far more organized, modern, and accessible whenever needed.

Beyond material benefits, there has been a remarkable acceleration in timelines due to the reduction of administrative processing time for training. Participant data processing—which once took days due to the need for manual consolidation from various paper documents—can now be completed automatically by the system in mere seconds. This service speed offers greater bureaucratic certainty for both participants and their home agencies, which require rapid reports on employee competency development for transfer or promotion purposes.

Administrative staff responsible for compiling participant grades and attendance directly experience this newfound ease. Thanks to the intelligent system embedded in the platform, every assessment component—whether derived from discussion participation, structured assignments, or final exam scores—is automatically aggregated, eliminating the risk of human calculation errors. This eliminates opportunities for grade manipulation or administrative subjectivity, ensuring that the accountability and transparency of training results can be scientifically substantiated.

The pinnacle of this administrative efficiency is reflected in the issuance mechanism for completion certificates, which has fully transitioned to an electronic format. The legal validity of these digital documents is guaranteed through the integration of Electronic Signature technology linked to a national certification authority. Implementing this technology not only cuts printing and physical document shipping costs but also provides high-level security that is impossible to forge, while accelerating the delivery of completion credentials to participants. Regarding instructional implementation, the institution has opted for a blended learning approach that balances online and offline activities. This decision stems from the understanding that mastering the necessary competencies for civil servants cannot rely solely on passive digital interactions. A balanced equilibrium is required: technology is utilized to convey foundational knowledge, while in-person interaction is maintained to foster analytical depth, align understanding of organizational values, and strengthen professional networks among personnel.

Under this blended learning scheme, participants utilize online self-study sessions to master theories, concepts, and fundamental regulations through interactive modules available on the platform. During face-to-face sessions, classroom dynamics shift away from one-way lectures delivered by instructors. Instead, the meeting space transforms into a "solutions laboratory" where participants conduct in-depth case analyses, engage in academic debate to resolve real-world local bureaucratic challenges, and formulate actionable policy recommendations for their respective agencies.

One of the most compelling findings from the system's evaluation is the digital platform's ability to provide highly objective tools for monitoring participants through digital footprints. Every participant activity within the platform—ranging from login times and the duration spent reading articles to the level of engagement in discussion forums—is automatically recorded in the database. This yields highly accurate learning behavior analytics, enabling organizers to assess each participant's level of commitment.

This rigorous digital tracking effectively eliminates loopholes for indiscipline or proxy attendance—issues that frequently plague conventional training models. Within this digital ecosystem, participants cannot manipulate their attendance records because the system mandates scheduled, active interaction. If a participant fails to access materials or misses a deadline for an assignment, the system automatically revokes access and flags a failure status objectively, without human subjectivity.

However, despite this remarkable innovative leap, the institution's digital transformation faces external structural challenges. The primary obstacle stems from disparities in telecommunications infrastructure quality across the province's regions. Participants stationed in remote or isolated units frequently report unstable internet signals and limited electricity supplies. These technical constraints risk creating unequal access to information and disrupting the learning experience.

In response to these disparities, the training organizers have demonstrated institutional adaptability by formulating mitigation strategies focused on equitable access for all participants. Rather than enforcing rigid rules that apply the same standards regardless of circumstances, the institution offers methodological flexibility to participants located in areas with poor signal coverage. This mitigation approach is crucial to ensuring that the essence of educational inclusivity is not undermined by technological infrastructure limitations beyond the participants' control. From an operational standpoint, this mitigation strategy is implemented by providing downloadable video recordings of lessons and creating lightweight digital teaching modules. Thanks to this data-efficient and low-bandwidth content design, participants experiencing signal disruptions during the day can catch up on the material at night or after moving to areas with more stable internet connections, ensuring that curriculum objectives are met.

Beyond technical mitigation, the institution also humanizes the technology by providing an intensive personal support scheme. A responsive digital assistance unit ensures that any platform navigation issues encountered by participants can be addressed through direct guidance via simple, instant communication channels. This support plays a crucial role in alleviating the digital anxiety often experienced by senior officials unfamiliar with modern, app-based work cultures, thereby maintaining their learning motivation.

Ultimately, the long-term success of this digital training innovation cannot rest solely on the organizing agency. The human resource development sector acknowledges its limitations regarding core competencies in server infrastructure management and macro-level cybersecurity. Therefore, establishing cross-sector governance synergy with the Communication and Informatics Agency—the authority managing the regional data center is essential to ensure the sustainability and operational stability of the information system in use.

In this collaborative framework, the Communication and Informatics Agency serves as the infrastructure's bulwark, ensuring the smooth flow of data for the learning platform. The agency guarantees sufficient server capacity to prevent system failure during simultaneous mass access by thousands of civil servants. This collaboration also encompasses advanced cybersecurity measures to safeguard civil servants' personal data and official documents against hacking threats and unauthorized information leaks.

Viewed in its entirety, the implementation of this innovation reflects the noble values of modern public administration transformation. A public sector innovation is deemed successful not merely due to the sophistication of the tools employed, but rather its ability to integrate service flexibility with precise, measurable outcome indicators. Through this digital platform, the process of civil servant competency development moves beyond guesswork, grounding itself instead in precise analytics regarding behavioral patterns and learning outcomes.

The overarching conclusion to be drawn is that the modernization efforts undertaken by this agency have successfully established a robust blueprint for the future of regional digital bureaucracy. Despite challenges posed by limited physical telecommunications infrastructure in the region, inclusive mitigation strategies and solid inter-agency partnerships have proven effective in maintaining the high quality of training and development programs. This innovation stands as tangible proof that bureaucratic work culture can be transformed rapidly through the use of technology that is both practical and human-centric.

Conclusion

This study demonstrates that the human resource development innovation strategy implemented by the Banten Province Regional Human Resource Development Agency (BPSDMD) serves as a crucial response to the demands of the digital era, transforming conventional training methods into an integrated digital learning system. This innovation is realized through the implementation of blended learning, remote learning, and the use of the "Banten Ceria" Learning Management System (LMS) aligning with public sector innovation concepts and digitalization theories that position technology as an accelerator of organizational performance and transparency. The application of a well-structured regulatory framework specifically the 2025 Training Guideline Standard Operating Procedures (SOP) has ensured that all operational processes, from participant registration to the issuance of electronic certificates (e-certificates), are conducted efficiently and accountably. The success of this digital ecosystem is further supported by inter-agency collaboration with the Provincial Communication and Informatics Agency (Diskominfo), adequate budget allocation, and strong policy support for the Electronic-Based Government System (SPBE). Despite facing technical challenges—such as unstable internet connectivity and a digital literacy gap among senior civil servants—BPSDMD has successfully mitigated these obstacles through a human-centric approach, the provision of supplementary learning materials, and operational flexibility. These findings indicate that the digitalization strategy has effectively addressed organizational needs in an adaptive and professional manner.

Based on these findings, several recommendations are proposed. First, BPSDMD Banten Province should conduct basic digital literacy training prior to the commencement of core training programs and integrate gamification elements into the Learning Management System to enhance participant engagement. From a technical perspective, upgrading audiovisual equipment in hybrid classrooms and increasing backup internet network capacity in the control room should be prioritized to ensure seamless, uninterrupted learning activities. Government agencies (Regional Apparatus Organizations/OPD) within the Banten Provincial Government are encouraged to adopt proactive policies by temporarily exempting employees participating in training from their routine duties, thereby allowing them to focus fully on the learning process. Civil servants undergoing training also need to strengthen their independent learning capabilities and view the training as a long-term investment in their professional competence, rather than merely a means to satisfy administrative requirements. Furthermore, trainers (Widyaiswara) are encouraged to continuously develop more interactive virtual teaching methods to maintain social interaction and participant engagement throughout the training. Finally, future researchers are advised to examine post-training impacts by analyzing evaluation questionnaires completed by supervisors within government agencies, in order to assess the extent to which the knowledge gained has been applied to improve the quality of public service delivery.

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