

Innovation Strategy for Civil Servant HR Development in the Digitalization Era: BPSDMD Banten Province

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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 such as low digital literacy among civil servants, a conventional work culture, and limited network infrastructure. This study aims to evaluate 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 distance learning methods, while 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' digital literacy gaps served as obstacles, which were mitigated through human-centric support 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. Recommendations include strengthening backup internet infrastructure, recruiting additional programming experts, and expanding 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 toward a more effective, transparent, and accountable system. This transformation is realized through the implementation of the Electronic-Based Government System (SPBE)—part of the national bureaucratic reform agenda—which aims to enhance the quality of public services and the efficiency of government operations (Suryana et al., 2025). The successful implementation of SPBE depends not only on the availability of technology but also heavily on the quality of the civil servants (apparatus) who must adapt to change. Civil servants are required to possess digital competence, innovation skills, an adaptive mindset, and collaborative capacity to optimize technology use in carrying out government duties (Novitasari et al., 2025). Therefore, developing the competence

of the civil service apparatus is a strategic factor in supporting the success of digital-based bureaucratic transformation.

Although digital transformation policies have been widely implemented, their execution still faces various challenges within government organizations. Uneven levels of staff readiness have hindered the optimal use of technology. Some civil servants still possess low digital literacy – particularly among senior employees, who often struggle to adapt to technology-driven work systems. Furthermore, heavy workloads, limited supporting infrastructure, and an organizational culture still oriented toward conventional work patterns also impede the digital transformation process. These conditions demonstrate that successful government digitalization requires a human resource development strategy that is planned, sustainable, and capable of effectively addressing the actual competency needs of the civil service apparatus (Rusmulyani & Riani, 2024; Wahyudi & Fitriani, 2024).

Human resource development through education and training serves as a primary instrument for enhancing the capacity of the civil service apparatus. According to human capital theory, investment in education and training leads to increased individual and organizational productivity, provided the programs are designed to align with the competency requirements of specific roles (Becker, 1964, cited in Hasibuan, 2019). In line with this, Sedarmayanti (2017) asserts that the effectiveness of civil servant development programs is determined not only by the delivery of training but also by curriculum alignment, learning methods, organizational support, and the evaluation of how training outcomes are applied in the workplace. Consequently, innovation in the delivery of education and training has become an unavoidable necessity in meeting the demands of a digital bureaucracy.

Previous studies indicate that the digitalization of civil servant education and training can enhance learning effectiveness through the use of Learning Management Systems (LMS), blended learning methods, and other online learning platforms (Ayuningtyas, 2022). However, most research focuses primarily on the use of technology as a learning medium, while studies regarding organizational innovation strategies for managing human resource development—including the factors that facilitate or hinder their implementation within local government—remain relatively limited. Thus, a research gap persists regarding how comprehensive innovation strategies can be developed to enhance civil servant competence while simultaneously supporting the successful digital transformation of the bureaucracy.

One agency playing a pivotal role in civil servant competency development is the Regional Human Resources Development Agency (BPSDMD) of Banten Province. As the institution responsible for conducting technical government education and training, BPSDMD Banten Province has developed various digital innovations, including the implementation of the "Banten Ceria" LMS, blended learning methods, the digitalization of training administration, the provision of interactive learning materials, and digital-based alumni forums to support continuous learning (Ratnasari et al., 2025). These innovations aim to improve training effectiveness while fostering a civil service work culture that adapts to technological advancements. Nevertheless, implementation still faces various challenges, such as low digital literacy among some participants, limited internet network infrastructure, heavy workloads for civil servants, and inter-agency coordination that is not yet fully optimal.

These challenges demonstrate that the success of human resource development innovation depends not only on the sophistication of the technology employed but also on organizational readiness to manage change, foster a digital culture, provide adequate infrastructure, and offer guidance to training participants. Consequently, a comprehensive study is required to examine the applied innovation strategies, their implementation methods, and the factors that either facilitate or hinder the execution of these innovations. The study's findings are expected to shed light on the effectiveness of civil servant competency development strategies in supporting digital-based bureaucratic reform.

Based on this context, this research aims to analyze the innovation strategies for civil servant human resource development implemented by the Banten Province Human Resources Development Agency (BPSDMD) and to identify the factors supporting or impeding the implementation of digital-based government technical education and training innovations. This research is expected to contribute academically to the study of public sector human resource management while serving as a basis for evaluation and recommendations for the Banten Province BPSDMD in formulating competency development strategies that are more effective, adaptive, and sustainable, in alignment with the demands of government digital transformation.

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

The implementation of human resource (HR) development innovation through digital-based education and training at the Regional Human Resources Development Agency (BPSDMD) of Banten Province represents a crucial strategic response. This measure serves as a tangible adaptation to the mandates regarding the implementation of the Electronic-Based Government System (SPBE) issued by the central government. At the regional level, the BPSDMD bears a significant responsibility to ensure that civil servants (ASN) possess the adequate capacity to operate a fully digital government system (Suryana et al., 2025). Consequently, the digitalization of training is no longer merely an innovative option but an urgent regulatory necessity.

In-depth field findings reveal that the transformation undertaken by the BPSDMD of Banten Province goes beyond simply shifting material delivery from conventional classrooms to computer screens. More importantly, this transition constitutes a systemic move designed to enhance civil servant competencies, enabling them to adapt to a dynamic era (Ayuningtyas, 2022). The transformation focuses primarily on reconstructing curricula and learning interaction methods. Thus, civil servants do not merely receive information passively; instead, they actively construct new knowledge relevant to the demands of modern public service.

Within this digitalization roadmap, the Government Technical Division has designated digital-based training as a top organizational priority. This decision stems from an internal analysis regarding the high annual volume of participants in technical training programs. Beyond the sheer number of participants, the vast geographical distribution of civil servants across Banten Province—spanning from urban centers to remote rural areas—presents a distinct logistical challenge if traditional face-to-face methods were to be maintained.

The shift to digital methods has proven to be a driving force for a more efficient learning culture compared to conventional approaches (Fahlevi, 2024). Traditional classroom methods were often constrained by limitations regarding space, time, and supporting budgets, such as those required for accommodation. The advent of digital training has significantly eliminated these physical barriers. This has fostered a culture of independent learning among civil servants (ASN), enabling continuous competency development without disrupting daily public service operations.

This major innovation strategy has been concretely realized through the implementation of a Learning Management System (LMS) platform known as "Banten Ceria." The platform serves as a digital hub that integrates various operational aspects of the training—ranging from registration, material delivery, and interactive

discussions to final evaluation—within a single digital ecosystem. The accessibility provided by Banten Ceria allows participants to access learning modules anytime and anywhere.

Both theoretically and practically, the use of information technology in the learning process at BPSDMD Banten Province has proven to have a massive positive impact on the organization's overall work efficiency. This aligns with the view that technology should act as a performance accelerator rather than adding bureaucratic layers (Indrajit, 2016). This efficiency is evident in the reduction of redundant instructional directives and the standardization of training material quality for all participants, regardless of their specific service backgrounds.

One of the most tangible achievements of the Banten Ceria LMS implementation is its full support for the "paperless" principle. Prior to this innovation, every training session consumed thousands of sheets of paper for modules, evaluation forms, and participant profiles. Now, all such documents have been converted into digital formats—such as PDFs or cloud-based documents—directly contributing to regional budget efficiency and supporting eco-friendly initiatives.

The financial impact of implementing this digital training has been significant for the BPSDMD Banten Province budget. Conventional costs—such as catering, accommodation for out-of-town participants, the printing of handbooks, and physical classroom maintenance—have been drastically reduced. The budget savings achieved can then be reallocated toward the development of more advanced IT infrastructure and the enhancement of digital learning material quality.

Beyond cost efficiency, another crucial aspect observed in the field is the significant reduction in administrative time (Indrajit, 2016). Prior to the implementation of the Banten Ceria LMS, training staff spent weeks managing physical post-training documentation. Now, repetitive administrative processes have been automated by the system, resulting in an organizational workflow that is far shorter, more responsive, and more dynamic.

This administrative ease is clearly evident in the daily activities of BPSDMD staff when compiling participant evaluation scores. Thanks to the automated grading feature embedded in the Banten Ceria LMS, scores from assignments, quizzes, and final exams are instantly aggregated in real-time once participants complete their sessions (Muhtadin et al., 2025). This eliminates the potential for human error and assessor subjectivity issues that frequently hindered manual assessment methods.

Improvements extend beyond grading; the monitoring of participant attendance has also seen a drastic quality upgrade. The LMS accurately records login times, the duration spent reading modules, and levels of engagement in discussion forums. This digital attendance data is securely stored in a tamper-proof database, ensuring a high level of transparency and accountability that allows organizational leadership to evaluate the commitment of individual civil servants (ASN).

The culmination of this streamlined post-training administration at BPSDMD Banten Province is the e-certificate issuance mechanism. Once the system confirms a participant has passed—based on meeting minimum score and attendance requirements—they can immediately download their e-certificate. This process bypasses the lengthy bureaucratic steps associated with distributing physical documents, a particular benefit for participants stationed in remote areas.

A key factor ensuring the legal validity of these issued e-certificates is the integration of certified Electronic Signature (TTE) technology (Muhtadin et al., 2025). The use of Electronic Signatures (TTE) ensures that these digital documents possess legal validity equivalent to traditional certificates bearing wet-ink signatures. Furthermore, the encryption technology inherent in TTE provides a high level of protection, mitigating the risk of training certificate forgery by irresponsible parties.

By combining automated data aggregation with TTE-enabled e-certificates, BPSDMD Banten Province has successfully established a new standard for the speed of post-training services. Whereas civil servants (ASN) previously had to wait months to receive physical certificates—a delay that often hindered promotion processes or position adjustments—these documents can now be obtained within days, or even hours, of the training's official conclusion.

The empirical findings above align closely with theoretical concepts regarding digital transformation in global public administration. These concepts emphasize that flexibility is a key pillar determining the effectiveness of human resource competency development in the modern era (Mergel et al., 2019). In the context of BPSDMD Banten, this flexibility is manifested in the system's ability to accommodate the diverse learning styles of civil servants without disrupting their official work schedules.

In addition to flexibility, another crucial pillar identified by Mergel et al. (2019) is measurability. Through the analytics dashboard provided by the “Banten Ceria” Learning Management System (LMS), BPSDMD management can quantitatively assess participant comprehension levels using statistics on grade progression. This measurable data serves as a valuable foundation for evidence-based policymaking, enabling regional leaders to map the competency profiles of civil servants across Banten Province.

While the implementation of the Banten Ceria LMS has yielded numerous positive outcomes, field findings also reveal certain sociological obstacles. A major challenge is the digital literacy gap among training participants. Older civil servants generally require more time to adapt and need additional guidance to navigate the digital platform's features compared to their younger counterparts.

Technical hurdles also persist, particularly regarding the uneven stability of internet network infrastructure across various regions of Banten Province. Participants in remote areas or regions with challenging geographical conditions sometimes struggle to download high-resolution video materials or participate in live evaluation sessions. This highlights a critical need for the local government to continue ensuring equitable digital access.

In response to these challenges, the Government Technical Division of BPSDMD Banten Province has taken proactive measures. They have implemented adaptive solutions, including the provision of concise guide modules, a 24-hour technical helpdesk, and the optimization of the offline mode feature in the Banten Ceria mobile app. This feature allows participants to download materials when a strong signal is available and study them offline later.

BPSDMD's success in digitizing the training process has indirectly contributed to improving Banten Province's Bureaucratic Reform Index and Electronic-Based Government System (SPBE) Index. The initiative to foster clean, effective, transparent, and accountable governance through technology demonstrates the local civil service's strong commitment to embracing the era of Good Digital Governance.

Looking ahead, the sustainability strategy for the Banten Ceria LMS innovation focuses on full system integration with the Regional Personnel Information System (SIMPEG). Through this integration, every training record and score obtained by civil servants at BPSDMD will automatically update their personnel data portfolios at the Regional Personnel Agency (BKD). This data synchronization step will facilitate the implementation of merit-based policies regarding job promotions. Overall, the study demonstrates that the digital-based training innovation at BPSDMD Banten Province serves as a successful model for harmonizing SPBE regulatory requirements with practical operational needs. By prioritizing flexibility, administrative efficiency, and measurability as operational pillars, BPSDMD Banten has not only succeeded in maintaining the continuity of human resource competency development in the modern era but has also laid a solid foundation for a bureaucratic culture that is adaptive, agile, and future-oriented.

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 by transforming conventional training methods into an integrated digital learning system. This innovation is realized through the implementation of blended learning, distance 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 structured regulations, specifically the Standard Operating Procedures (SOP) for 2025 Training Guidelines, has ensured that all operational processes—ranging from participant registration to the issuance of digitally signed electronic certificates—operate 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 central government policies promoting the Electronic-Based Government System (SPBE). Despite facing technical challenges—such as unstable internet connectivity and a digital literacy gap among senior civil servants—the agency has successfully mitigated these obstacles through a human-centric approach, the provision of supplementary learning materials, and operational flexibility. Consequently, this digitalization strategy has proven capable of addressing 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 core training curriculum and incorporate gamification elements into the LMS to enhance participant engagement. From a technical perspective, prioritizing the improvement of audiovisual equipment quality in hybrid classrooms and expanding backup internet network capacity in the control room is essential to ensure the continuity and effectiveness of digital learning. Regional Government Agencies (OPD) within the Banten Provincial Government are encouraged to adopt proactive policies by temporarily exempting employees participating in training from their routine duties, allowing them to focus on the learning process. Furthermore, civil servants undergoing training are expected to strengthen their independent learning

capabilities and view the training as a long-term investment in their professional competence. Trainers also need to continuously develop more interactive virtual teaching methods to maintain participant engagement and social interaction throughout the learning process. Finally, future research is advised to examine post-training outcomes by analyzing impact evaluation questionnaires completed by supervisors within the Regional Government Agencies (OPD), in order to assess the practical application of acquired competencies in enhancing the quality of public service delivery.

References

- Ayuningtyas, A. 2022. "Pengembangan Sumber Daya Aparatur Menuju Era Smart ASN." *The Journalish: Social and Government* 3(4):255–66.
- Creswell, J. W. and J. D. Creswell. 2018. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 5th ed. Thousand Oaks, CA: SAGE Publications.
- Fahlevi, R. 2024. "Inovasi Pengembangan Kompetensi ASN Melalui Corporate University untuk Meningkatkan Kualitas Pelayanan Publik." *Prosiding Seminar Nasional Mahasiswa Kebijakan Publik*:338–48.
- Hasibuan, M. S. P. 2019. *Manajemen Sumber Daya Manusia*. Edisi Revisi. Jakarta: Bumi Aksara.
- Indrajit, R. E. 2016. *Konsep dan Strategi Electronic Government*. Yogyakarta: Andi Offset.
- Mergel, I., N. Edelman, and N. Haug. 2019. "Defining Digital Transformation: Results from Expert Interviews." *Government Information Quarterly* 36(4):101385
- Moleong, L. J. 2018. *Metodologi Penelitian Kualitatif*. Edisi Revisi. Bandung: PT Remaja Rosdakarya.
- Muhtadin, A., A. Mustofah, and E. Haryati. 2025. "Transformasi Digital dalam Pelayanan Kenaikan Pangkat ASN (Studi Kasus Implementasi SIPEKAT di Kabupaten Sidoarjo)." *Jurnal Riset Sosial Humaniora Dan Pendidikan* 3(6):106–20
- Novitasari, D., D. T. Nasution, G. E. Pratikno, and A. Fauzi. 2025. "Transformasi Manajemen SDM ASN di Era Digital: Kajian Literature atas Kompetensi Digital, Sistem Merit, dan Gaya Kepemimpinan." *JEMSI: Jurnal Ekonomi, Manajemen, Dan Akuntansi* 6(6)
- Ratnasari, V. R. Handoko, and J. Widodo. 2025. "Implementasi Model Blended Learning pada Pelatihan Dasar CPNS di BPSDM Provinsi Jawa Timur." *Jurnal Kajian Pemerintah* 11(2):212–24
- Rijali, A. 2018. "Analisis Data Kualitatif." *Alhadharah: Jurnal Ilmu Dakwah* 17(33):81–95
- Rukajat, A. 2018. *Pendekatan Penelitian Kualitatif (Qualitative Research Approach)*. Yogyakarta: Deepublish.
- Rusmulyani, K. and N. K. Riani. 2024. "Tantangan dan Hambatan pada Pelatihan Bagi ASN: Blended Learning Sebagai Alternatif Pembelajaran Inovatif." *Jurnal Review Pendidikan Dan Pengajaran* 7(1):32–39.
- Salusu, J. 2015. *Pengambilan Keputusan Strategik untuk Organisasi Publik dan Organisasi Nonprofit*. Jakarta: Bumi Aksara.

- Sedarmayanti. 2017. Manajemen Sumber Daya Manusia, Reformasi Birokrasi dan Manajemen Pegawai Negeri Sipil. Bandung: PT Refika Aditama.
- Sugiyono. 2017. Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.
- Suryana. 2013. Kewirausahaan: Kiat dan Proses Menuju Sukses. Edisi Keempat. Jakarta: Salemba Empat.
- Wahyudi, A. and R. Fitriani. 2024. "Evaluasi Kesiapan Infrastruktur Digital dalam Pelayanan Publik di Era Pascapandemi." Jurnal Kebijakan Publik Dan Teknologi 9(1):55-7